Canada Mortgage and Housing Corporation

Société canadienne d'hypothèques et de logement

CMHC Helping to house Canadians

A REVIEW OF RESEARCH ON RESIDENTIAL RENOVATION

A REVIEW OF RESEARCH ON RESIDENTIAL RENOVATION

prepared for
Research Division
Canada Mortgage and Housing Corporation

prepared by
TEEGA Research Consultants Inc.
Ottawa, Ontario

January 1989

TEEGA

90-01276/

A REVIEW OF RESEARCH ON RESIDENTIAL RENOVATION

Study Team:

Hussein Rostum (Principal Investigator)
Paula Archer (Consultant)
Eliane Thonney (Research Assistant)
Claudette Gaudet (Research Assistant)

TEEGA Research Consultants Inc.
Ottawa, Ontario

January 1989

TABLE OF CONTENTS

		Page
	ACKNOWLEDGMENTS	iv
	SUMMARY AND CONCLUSIONS	v
I.	**INTRODUCTION**	1
	1.1 Background	1
	1.2 Objectives of the Study	3
	1.3 Definition of Residential Renovation	4
	1.4 Approach	4
	1.5 Residential Renovation Overview	6
II.	**DEVELOPMENT OF THE RESIDENTIAL RENOVATION DATABASE**	11
	2.1 Literature Search	11
	2.2 Database Design and Contents	15
	2.3 Classification	16
III.	**ANALYSIS OF AREAS OF RESEARCH**	20
	3.1 Categories	20
	3.2 Years	22
	3.3 Countries	23
IV.	**COMMENTS ON SELECTED RESEARCH**	24
	4.1 Role of Government	24
	4.2 Industry and Market Studies	26
	4.3 Impacts and Effects	28
	4.4 Housing Conditions and Needs	29
	4.5 Technology Research	32
V.	**REVIEW OF RESEARCH AND PRIORITIES**	34
	5.1 Residential Renovation Research is a Multi-Disciplinary Activity	34
	5.2 Role of Government	34
	- Alternative Financial Mechanisms	34
	- Regulations and Standards	35
	- Provincial and Municipal Programs	36
	- Legislation	36
	- Regional Differences	37
	- Program Delivery	37
	- Monitoring of Renovation Activities	37

		Page
5.3	Industry and Market Studies	38
	- Industry Structure and Operations	38
	- Financing Practices	39
	- Business Practices	39
	- Dynamics of Supply and Demand	40
	- Role of Third Sector	40
	- Rural Areas	41
5.4	Impacts and Effects	42
	- Economic Impacts and Effects	42
	- Costs and Benefits of Renovation	42
	- Determinants of Renovation	43
	- Impediments	43
	- What is Renovated?	44
	- Consumer Education	44
	- Implications of Self-Help	44
5.5	Housing Conditions and Needs	45
	- Data Collection	45
	- Measuring Housing Conditions	46
	- Analysis of Trends and Prospects	46
	- Needs of Elderly	46
5.6	Technology Research	47
	- Technology Development--Who Does What?	47
	- Technology Transfer	47
	- Processes and Applications	48
	- Evaluation	48
5.7	Other Research Areas	48
	- Training	48
	- Information Dissemination and Coordination	49

APPENDIX A : List of Persons Consulted
APPENDIX B : Definitions of Key Terms
APPENDIX C : Data Collection Instrument
APPENDIX D : Sample Database Record
APPENDIX E : Current List of Titles
APPENDIX F : Detailed Tabulation of Titles

ACKNOWLEDGMENTS

The project team would especially like to thank Chris Terry of the Research Division of Canada Mortgage and Housing Corporation for his guidance and support throughout the course of this study.

We would also particularly like to express our appreciation to the staff of the Canadian Housing Information Centre at CMHC, for their substantial contribution in tracking down references and generating listings of titles from a variety of sources.

Finally, we are indebted to all the housing specialists who kindly consented to be interviewed, and who provided us with valuable information on the current state of residential renovation research.

SUMMARY AND CONCLUSIONS

This report describes the approach and presents the results of a review of research on residential renovation in Canada. The time span of the research work reviewed is the past ten years.

OBJECTIVES

The objectives of this study are as follows :

- *To identify and compile pertinent, descriptive information on renovation research which has been carried out over the past decade in Canada.*
- *To develop a computer database which consolidates the compiled information and serves as an analytical basis for evaluating research on residential renovation carried out over the past decade.*
- *To identify areas of research which have been sufficiently addressed and to distinguish these from areas where further study is required.*

DEFINITION OF RESIDENTIAL RENOVATION

For the purposes of this report, renovation is defined as a set of activities performed on an existing residential structure which does any of the following:

- *sustain the structure's current physical condition by regular maintenance;*
- *increase its soundness and safety by replacing or fixing components;*
- *improve its physical state beyond its original condition;*
- *modify it to increase or reorganize its living space;*
- *alter it to meet special needs of its occupants (e.g., barrier-free access for the physically disabled); or*
- *convert it to change its number of self-contained units.*

APPROACH

The approach taken in this study to review the research on residential renovation involved the following :

- *a literature search and review*
- *compilation of pertinent information into a computerized database*
- *interviews with specialists knowledgeable about housing renovation*
- *analysis of the database and interview results*
- *assessment of gaps and priorities.*

CATEGORIES OF RESEARCH

All the research examined was classified into six broad categories, each of which was further segmented into more specific groups.

The broad categories are :

- *role of government*
- *industry and market studies*
- *impacts and effects*
- *housing conditions and needs*
- *technology research*
- *other research*

The specific groups within each of these categories are described within the body of the report.

ANALYSIS OF DATABASE

The following table provides a snapshot of the contents of the research database :

FREQUENCIES OF TITLES BY CATEGORY AND YEAR

Category	1978-1982		1983-1988		TOTAL	
	#	%	#	%	#	%
Role of Government	64	32	67	33	131	33
Industry & Market Studies	30	15	30	15	60	15
Impacts and Effects	30	15	32	16	62	15
Housing Conditions & Needs	31	16	22	11	53	13
Technology	16	8	28	14	44	11
Other	29	15	24	12	53	13
Total	200	100	203	100	403	100
Per Cent		50		50		100

- *This table shows the frequency of titles by each research category. The largest number of studies have focused on the role of government in residential renovation. About 33 per cent of studies carried out are in this area.*

- *In comparison, studies which are predominantly focused on private industry and the market make up 15 per cent of the total.*

- *Research centred around measuring the impacts and effects of renovation also make up about 15 per cent of the total, and those studies covering housing conditions and needs account for about 13 per cent.*

- *Studies centred around the role of government, industry and market studies, and analyses of impacts and effects all have been as frequent during the first part of the decade as in the second. On the other hand, studies focused on housing conditions and needs have declined from 16 per cent of the total in the first half to 11 per cent of the total in the second half of the decade. Conversely, studies focused on technology research have increased from 8 per cent to 14 per cent.*

CAVEAT

An important caveat about the review provided in this report is that a large part of the research work carried out does not necessarily focus on single areas of investigation -- for example, many policy studies deal with a variety of issues which traverse several of the classification categories. Such studies in practice are not easily classified and could end up in one category or another depending on the amount of coverage in the studies given to specific research areas, and of course depending on the conceptual selection basis used by the classifier. Nonetheless, it is necessary to draw distinctions which highlight the most salient aspects of each study if an analysis of research activities and priorities is to be feasible.

CONCLUSIONS

Based on the review of research carried out in this study, the study team has reached the following conclusions :

Role of Government

- *The general direction of studies on the role of government have centred around the residential rehabilitation component of renovation. Other components such as addition, conversion, modification, alteration, improvement, and maintenance(1) have not had the same degree of coverage and visibility -- yet each of these components make up significant parts of the renovation industry.*

- *Issues related to regulations and standards for renovation have not been adequately researched. These issues include questions related to :*

  - *consumer protection*
  - *licensing requirements*
  - *warranty programs*
  - *enforcement of standards*
  - *maintenance and occupancy by-laws*
  - *inspections practices*
  - *streamlining of approval processes for renovation work*
  - *specific impacts of regulations and standards on landlords and on their inclination to renovate.*

- *Much of the research on the role of government has centred around federal and provincial contributions. More research is needed to examine the role and consequences of municipal government involvement.*

- *The legislative implications of alternative tax incentives and other financial mechanisms which encourage and assist consumers to renovate, have not been sufficiently studied. A compendium of legislation such as that covering property taxes, rent controls, zoning, development approvals, capital gains taxes, capital cost allowances, trades regulations, consumer protection, etc. -- and how these impact on residential renovation activities -- would be a good basis from which to launch further research in this area.*

---

(1) These terms are defined in the report.

- *The issue of regional differences in housing renovation activities and problems has not been fully investigated over the past decade. A comprehensive "stock taking" study which compiles existing knowledge about regional differences would help focus efforts at addressing related questions on the role of government in dealing with these differences.*

- *Most of the housing analysis and monitoring activities are primarily focused on the new housing sector of the industry. The feasibility of monitoring the residential renovation sector per se should be studied -- to determine how best, on an ongoing basis, to keep the actors in the renovation sector well informed about developments and activities in their particular area of interest.*

Industry and Market Studies

- *During the past five years or so there have been some studies carried out to better understand the structure and operations of the industry. A major area of research activity which needs to be continued in this direction is the collection of statistics on firms, including their number, size, turnover rate in the business, type of work carried out, degree of specialization, business volumes, profitability, and growth potential.*

- *Very little research has been carried out regarding the financing practices of the renovation industry. Relevant questions which need to be addressed are :*

  . *How is renovation financed by consumers?*
  . *What is the lenders point-of-view regarding financing of renovation?*
  . *What programs should be introduced to facilitate better lending practices and easier access to funds?*
  . *Are there any significant differences between different urban and rural centres across Canada?*
  . *Do some areas have more difficulty in obtaining financing for renovation, and if so are these areas, as suspected, more likely to need it?*

- *Generally the renovation industry is still for the most part informally organized -- i.e., there does not exist any formal organization which oversees the business of residential renovation as practiced by firms and individuals. Determining the feasibility and mechanisms of streamlining the industry by establishing a formal network should be an area of research interest.*

- *The economic dynamics underlying the balance of supply of housing with demand have been studied mostly in the context of new construction. The role of conversions, additions, and other renovation activities, should be similarly studied.*

- *The review has shown that there is a need to document the differences in urban and rural dimensions of residential renovation. If the improvement of the quality and appropriateness of rural housing is to be achieved, a better understanding of renovation problems in rural areas is required.*

Impacts and Effects

- *With almost $16 billion annual expenditures the renovation industry has a considerable impact on the Canadian economy. Renovations account for over 40 per cent of total expenditures on residential construction and represent about 2.6 per cent of Canada's Gross Domestic Product. The spin-offs of renovation include : employment generation, increase of property values, neighbourhood effects, and displacement of households. The literature is plentiful with references to these spin-offs, but most of the research is dated, largely referring to 1970s and early 1980s situations. Research on impacts and effects of renovation needs to be revived from within a more contemporary perspective.*

- *While some of the questions regarding consumer determinants and impediments to renovation have been addressed by the National Housing Study (CMHC, 1986), there are aspects to the decision to renovate involving income and lifestyle factors which still need to be addressed. Furthermore, incentives to renovate should be examined separately within the context of each of the distinct components of renovation identified in this report.*

Housing Conditions and Needs

- *There is a strong consensus among experts on the need for more appropriate information on residential renovation in Canada. Much of the existing data, with some exceptions, have been gathered with an underlying conceptual basis centred around rehabilitation and government program development requirements. Renovation is far more comprehensive in its scope and in its contribution to shelter requirements of Canadians. Therefore, data collection should begin from this basic premise -- i.e., tailoring data assemblage around a more rigorous interpretation of the activities which result in renovation of dwellings, namely with the view that renovation is not only rehabilitation but also addition, conversion, modification, alteration, improvement, and maintenance.*

- *Research work in determining the physical housing conditions and needs of Canadians over the past decade has generally focused on national and provincial representativeness. More detailed information and research which is representative of local conditions is needed.*

- *Many of the Canadian houses which require renovation are occupied by senior citizens. The requirements of seniors in terms of maintenance, incentive to renovate, and other housing options for the future, including conversions and modifications, should be further studied -- particularly given the now well documented evidence about the aging Canadian population.*

The report also contains conclusions regarding technical and other areas of residential renovation research. Only those points considered by the study team to be of higher rank in priority have been presented above.

SOMMAIRE ET CONCLUSIONS

Ce rapport décrit la démarche d'un examen des recherches entreprises sur la rénovation résidentielle au Canada au cours des dix dernières années et en présente les résultats.

OBJECTIFS

Cette étude vise à :

° Relever et à compiler des données pertinentes et descriptives sur les recherches en rénovation qui ont été menées au Canada au cours de la dernière décennie.

° Élaborer une base de données informatisée, à partir de l'information recueillie, qui servira de fondement analytique pour l'évaluation des recherches.

° Relever les domaines qui ont été suffisamment étudiés et cerner ceux qui doivent faire l'objet de recherches supplémentaires.

DÉFINITION DE LA RÉNOVATION RÉSIDENTIELLE

Aux termes de ce rapport, la rénovation résidentielle se définit comme l'ensemble des travaux que subit un bâtiment résidentiel existant pour :

° préserver son état actuel au moyen d'un entretien régulier;
° accroître sa solidité et sa sécurité en remplaçant ou en réparant un ou plusieurs de ses éléments;
° améliorer son état;
° le modifier pour répondre aux besoins spéciaux de ses occupants (p. ex. accès sans obstacle pour les handicapés); ou
° le convertir pour modifier le nombre de logements autonomes qu'il abrite.

DÉMARCHE

La démarche adoptée pour examiner les recherches sur la rénovation résidentielle comportait les mesures suivantes :

° recherche et examen de la documentation;
° compilation de l'information pertinente et élaboration d'une base de données informatisée;
° entrevues avec des spécialistes en rénovation résidentielle;
° analyse de la base de données et des résultats des entrevues;
° évaluation des lacunes et des priorités.

CATÉGORIES DE RECHERCHE

Les recherches examinées ont été classées en six catégories générales, lesquelles ont ensuite été divisées en sous-catégories.

Les six catégories générales sont les suivantes :

- rôle du gouvernement;
- études du marché et de l'industrie;
- conséquences de la rénovation;
- état des logements et besoins dans ce domaine;
- recherche technologique;
- recherches diverses.

Les sous-catégories sont décrites dans le corps du rapport.

ANALYSE DE LA BASE DE DONNÉES

Le tableau suivant donne un aperçu du contenu de la base de données sur les recherches en rénovation :

NOMBRE DE RECHERCHES SELON LA CATÉGORIE ET L'ANNÉE

Catégorie	1978-1982		1983-1988		TOTAL	
	Nbre	%	Nbre	%	Nbre	%
Rôle du gouvernement	64	32	67	33	131	33
Études du marché et de l'industrie	30	15	30	15	60	15
Conséquences de la rénovation	30	15	32	16	62	15
État des logements et besoins dans ce domaine	31	16	22	11	53	13
Recherche technologique	16	8	28	14	44	11
Recherches diverses	29	15	24	12	53	13
Total	200	100	203	100	403	100
Pourcentage		50		50		100

- Comme le démontre ce tableau, la majorité des recherches ont porté sur le rôle du gouvernement dans la rénovation résidentielle. Environ 33 p. 100 des recherches ont été menées dans ce domaine.

- Par comparaison, les recherches portant principalement sur l'industrie privée et le marché forment 15 p. 100 du total des recherches.

° Les recherches mesurant les conséquences de la rénovation forment aussi environ 15 p. 100 du total, tandis que celles qui se concentrent sur l'état des logements et les besoins dans ce domaine en représentent approximativement 13 p. 100.

° Il y a eu autant de recherches sur le rôle du gouvernement, les études de l'industrie et du marché et les conséquences de la rénovation dans la première moitié de la décennie que dans la seconde. Par contre, les recherches sur l'état des logements et les besoins dans ce domaine, qui constituaient 16 p. 100 du total durant la première moitié de la décennie, n'en représentaient que 11 p. 100 dans la seconde. À l'inverse, les recherches technologiques sont passées de 8 à 14 p. 100.

AVERTISSEMENT

Il est important de noter qu'une grande partie des recherches examinées dans ce rapport ne portaient pas nécessairement sur un seul domaine; par exemple, bon nombre d'études d'orientation se concentrent sur diverses questions qui recoupent plusieurs catégories de recherche. Dans les faits, les recherches sont difficiles à classer et peuvent facilement être placées dans une catégorie ou l'autre selon l'importance qu'elles accordent aux différents domaines d'études et les critères de sélection de la personne chargée d'effectuer la classification. Il est malgré tout nécessaire de mettre en lumière les aspects les plus saillants de chaque recherche si on veut analyser les activités de recherche et les priorités adoptées dans ce domaine.

CONCLUSIONS

Le groupe d'étude a tiré de l'examen des recherches entreprises sur la rénovation résidentielle les conclusions décrites ci-dessous :

Rôle du gouvernement

° De manière générale, les études du rôle du gouvernement ont porté sur la composante "remise en état" de la rénovation résidentielle. Les autres composantes, notamment les ajouts, les conversions, les modifications, les réfections, les améliorations et l'entretien (1) n'ont pas reçu la même attention, bien qu'elles représentent toutes une partie importante de l'industrie de la rénovation.

° Les questions reliées à la réglementation et aux normes n'ont pas fait l'objet de recherches appropriées. Parmi ces questions, on retrouve :

(1) Ces termes sont définis dans le rapport.

- la protection des consommateurs;
- les exigences reliées à la délivrance de permis;
- les programmes de garanties;
- l'application des normes;
- la réglementation en matière d'entretien et d'occupation;
- les méthodes d'inspection;
- la rationalisation du processus d'approbation des travaux de rénovation;
- les répercussions précises de la réglementation et des normes sur la situation des propriétaires et sur leur volonté de rénover.

- La plupart des recherches sur le rôle du gouvernement dans le domaine de la rénovation ont porté sur les gouvernements fédéral et provinciaux. Des recherches devraient être entreprises sur le rôle des gouvernements municipaux et les conséquences de leur participation.

- On n'a pas suffisamment étudié les répercussions, sur le plan législatif, des mesures fiscales et des autres mécanismes financiers destinés à encourager les consommateurs à rénover, et à les y aider. Un résumé des mesures législatives, couvrant notamment l'impôt foncier, le contrôle des loyers, le zonage, les approbations relatives à l'aménagement, l'impôt sur les gains en capital, les déductions pour amortissement, la réglementation relative à l'exercice des métiers, la protection des consommateurs et des conséquences de ces mesures sur la rénovation résidentielle, constituerait une excellente base pour les futures recherches dans ce domaine.

- Au cours de la dernière décennie, on ne s'est pas suffisamment intéressé aux différences régionales en ce qui a trait aux activités de rénovation résidentielle et aux problèmes qu'elles présentent. Une étude inventoriant l'ensemble des connaissances actuelles sur les particularités régionales permettrait de concentrer les efforts en vue de soulever des questions pertinentes sur le rôle du gouvernement quant à la façon de traiter ces différences.

- La plupart des activités d'analyse et de contrôle de l'industrie du logement concernent le secteur des logements neufs. On devrait donc étudier la faisabilité d'un contrôle de la rénovation résidentielle, afin de déterminer les meilleures façons de maintenir les intervenants du secteur de la rénovation informés, de manière continue, des développements et des activités de leur secteur.

Études de l'industrie et du marché

- Quelques études ont été menées au cours des cinq dernières années, environ, pour mieux comprendre l'organisation et les activités de l'industrie. Un des domaines de recherche qui a besoin d'être exploré davantage concerne les entreprises de rénovation. En effet, on devrait recueillir des statistiques sur ces entreprises, notamment sur leur nombre, leur taille, leur taux de rotation, le genre de travaux qu'elles effectuent, leur degré de spécialisation, leur volume d'affaires, leur rentabilité et leur potentiel de croissance.

- Très peu de recherches ont été effectuées sur les pratiques financières de l'industrie de la rénovation. Voici quelques-unes des questions auxquelles on devrait répondre :
  - Comment les consommateurs financent-ils leurs travaux de rénovation?
  - Quelle est l'attitude des prêteurs quant au financement des travaux de rénovation?
  - Quels programmes devraient être mis en place pour faciliter l'établissement de meilleures méthodes d'octroi des prêts et l'obtention de fonds;
  - Existe-il des différences notables entre les diverses régions urbaines et rurales du Canada?
  - Certaines régions ont-elles plus de difficultés à obtenir des fonds pour la rénovation que d'autres et, si oui, s'agit-il, comme on s'y attend, de régions qui sont le plus à même de nécessiter des travaux de rénovation?

- L'industrie de la rénovation, en général, n'a pas une structure très rigide. En d'autres termes, aucun organisme officiel ne contrôle les activités des entreprises et des particuliers travaillant dans le secteur de la rénovation. Il serait intéressant de déterminer la faisabilité d'une rationalisation de l'industrie, par la mise en place d'un réseau officiel, et les mécanismes nécessaires pour procéder à cette rationalisation.

- La dynamique qui sous-tend l'équilibre entre l'offre et la demande de logements a été étudiée surtout pour ce qui est des nouvelles constructions. Le rôle joué par les conversions, les ajouts et les autres travaux de rénovation devrait faire l'objet d'études similaires.

- L'examen a révélé le besoin de documenter les différences entre la rénovation résidentielle dans les régions urbaines et rurales. Si on veut que les logements ruraux soient de meilleure qualité et conviennent mieux à leurs occupants, on doit s'efforcer de mieux comprendre les problèmes de rénovation propres aux régions rurales.

Conséquences de la rénovation

- Totalisant près de 16 milliards de dollars en dépenses annuelles, l'industrie de la rénovation a des répercussions considérables sur l'économique canadienne. Les travaux de rénovation représentent plus de 40 p. 100 des dépenses engagées pour la construction résidentielle et environ 2,6 p. 100 du produit intérieur brut du Canada. Les retombées de la rénovation comprennent notamment la création d'emplois, l'augmentation de la valeur des propriétés, certaines répercussions sur les quartiers et le déplacement de ménages. Il existe beaucoup de documentation faisant référence à ces retombées, mais la plupart fait état de la situation des années 1970 et du début des années 1980. Il serait approprié d'étudier les conséquences de la rénovation sur une période plus récente.

° L'Enquête nationale sur l'habitation (SCHL, 1986) a abordé quelques-unes des questions concernant les facteurs qui poussent les consommateurs à rénover et les obstacles qu'ils rencontrent; cependant, la décision de rénover comporte certains aspects reliés au revenu et au style de vie qui doivent encore être étudiés. En outre, les mesures d'incitation à la rénovation devraient faire l'objet d'un examen distinct pour chacune des composantes de la rénovation décrites dans ce rapport.

État des logements et besoins dans ce domaine

° Il existe un fort consensus parmi les experts quant au besoin de données plus appropriées sur la rénovation résidentielle du Canada. La plupart des données existantes ont été recueillies en fonction des activités de remise en état et des besoins reliés à l'élaboration de programmes gouvernementaux. La rénovation est une activité dont la portée est beaucoup plus large qui joue un rôle beaucoup plus important quant à la satisfaction des besoins de logement des Canadiens. La collecte de données devrait découler de cette prémisse, c'est-à-dire d'une interprétation plus rigoureuse des activités de rénovation résidentielle selon laquelle la rénovation ne se limite pas à la remise en état, mais comprend également les ajouts, les conversions, les modifications, les réfections, les améliorations et l'entretien.

° Les recherches entreprises au cours des dix dernières années sur l'état des logements et les besoins des Canadiens dans ce domaine se sont concentrées généralement sur la situation à l'échelle provinciale et nationale. On a besoin de données plus détaillées et de recherches supplémentaires sur l'état des logements à l'échelle locale.

° Au Canada, bon nombre des maisons qui ont besoin d'être rénovées sont occupées par des personnes âgées. On devrait étudier de façon plus poussée les besoins de ces personnes en ce qui a trait à l'entretien, aux mesures d'incitation à la rénovation et aux options de logement pour le futur, y compris les conversions et les modifications, particulièrement à la lumière du vieillissement de la population, maintenant bien documenté.

Le rapport contient également des conclusions au sujet des recherches entreprises dans d'autres domaines de la rénovation résidentielle, notamment le domaine technique. Seuls les points jugés les plus importants par le groupe d'étude ont été abordés ici.

I. INTRODUCTION

This report describes the approach and presents the results of a review of research on residential renovation in Canada.

1.1 Background

The residential renovation industry in Canada has been growing steadily over the past two decades. Expenditures on residential renovation have increased from about one third during the 1970s to over half of total expenditures in the residential sector during the 1980s. This is an important trend not only in proportionate terms but in dollar value as well. Chart 1 indicates that the expenditures on residential renovation have nominally increased from $1.5 billion in 1969 to $15.6 billion in 1987 (data are in current dollars based on National Income and Expenditure Accounts, Statistics Canada). In addition, Chart 1 shows that while renovation expenditures have been remarkably consistent in growth, expenditures on new construction have periodically fluctuated. New residential construction activity has been more reactive to changes in economic conditions than renovation -- particularly as exemplified by the trend of the late 1970s through the 1980s. Although residential

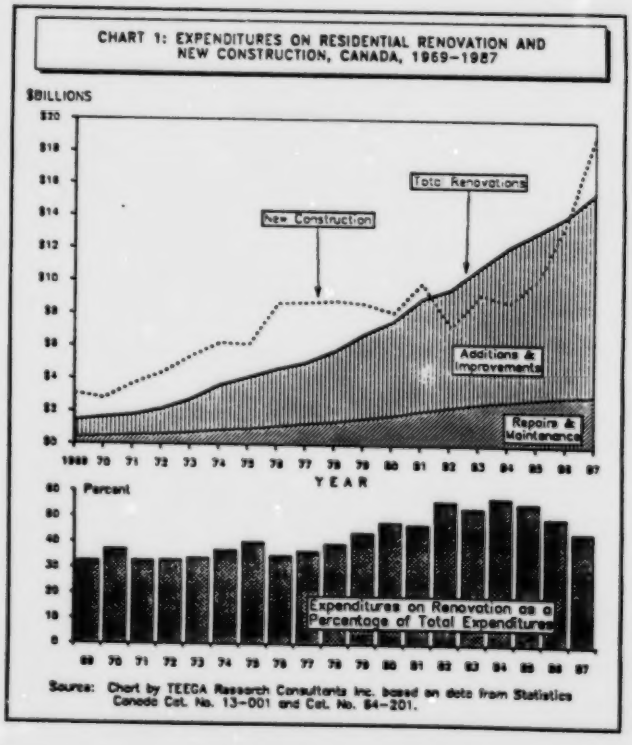


CHART 1: EXPENDITURES ON RESIDENTIAL RENOVATION AND NEW CONSTRUCTION, CANADA, 1969-1987

Source: Chart by TEEGA Research Consultants Inc. based on data from Statistics Canada Cat. No. 13-001 and Cat. No. 64-201.

renovation has been subjected to the same economic influences, it has maintained a stable upward trend for the past two decades. While most of the increase is due to additions and improvements, repairs and maintenance have continued to account for over 20 per cent of expenditures on renovation.

While expenditures on new construction have recovered from the slump of the first half of the 1980s (see Chart 1), the growth of renovation as an important segment of the housing industry can be expected to continue through the 1990s. Expenditures on renovation have been projected to continue growing progressively over the next fifteen years to average about $16 billion annually from 1986 to 1996 and to exceed $20 billion annually by 2001.(1)

In addition to the impressive actual and projected rise in renovation expenditures, a number of initiatives over the recent past have contributed to an increase of interest in research on residential renovation.

1. In July of 1987 Canada Mortgage and Housing Corporation initiated a residential renovation consultation process with producer and consumer interest groups, provincial governments, and individuals involved in the housing industry. This consultation process has focused on the role that government should play in private renovation markets and on the extent to which government programs aimed at residential rehabilitation can be improved. Two reports were produced during this process. The first report, Consultation Paper on Housing Renovation, was distributed to groups and individuals with an interest in housing renovation. This report provided a focus for discussion of renovation issues. Over fifty submissions were presented to CMHC by the end of 1987, offering a variety of commentary on policy and program options for the future.

The second report, The Renovation Consultation Process: Round One Consensus and Round Two Options, presented program alternatives for deliberation by government and for feedback from housing interest groups, industry associations, and individuals. The results of the consultation process are now being studied by CMHC and future directions in the role of government and program alternatives are being considered.

2. A National Housing Study was carried out by CMHC during 1986. The objective of this study was to provide timely and accurate data on current housing conditions and on the nature and extent of home renovation activity for a representative sample of Canada's low rise residential stock. The study produced extensive data on the state of repair of the existing low rise housing stock, and the nature and extent of low rise residential renovation activity in 1985.(2)

3. A Housing Research Committee was set up by CMHC in 1986 with the participation of private and public sector housing organizations, agencies and departments. This Committee is concerned with the discussion and establishment

---

(1) Clayton Research Associates Limited, The Demand from Residential Renovation for Selected Wood-Based Building Products, a report prepared for the Department of Regional Industrial Expansion, Ottawa, September 1986.

(2) Ekos Research Associates Inc., Final Report for the 1986 National Housing Survey, a report prepared for Canada Mortgage and Housing Corporation, Ottawa, February 1987.

of national housing research priorities. In recognition of the importance of renovation activities and issues, this Committee established a Working Group on Renovation. The activities of this working group involve the exchange of information on renovation research of the participants, as well as discussion of issues and agreement on areas of cooperation.

4. The federal government has recently appointed a specific Minister of State (Housing) to oversee federal housing policies and programs. This federal initiative reinforces the country's interest in addressing housing issues in general and acknowledges the importance of the national housing stock as an asset that requires proper maintenance and continuing repair.

1.2 Objectives of the Study

In view of the background presented above, it is not surprising that residential renovation activity has emerged as a major topic of research concern both for the public and private sectors, and that the National Housing Research Committee established by CMHC has supported the proposal that "... renovation research be treated as a priority and that a 'stock-taking' project be undertaken on the state of research conducted to date in this area. This project [is to] integrate the findings of work already undertaken".(1) There is an apparent consensus on the need to compile information on research related to the residential renovation industry, with the purpose of presenting a clear and comprehensive picture of work carried out over the past decade.

The first objective of this study is to identify and compile pertinent, descriptive information on renovation research which has been carried out over the past decade in Canada. While the focus is on research undertaken in Canada, relevant work in other countries such as the United States and the United Kingdom is also of interest to the extent that results of this work are transferable to the Canadian context.

The second objective is to develop a computer database which consolidates the compiled information and serves as an analytical basis for evaluating research on residential renovation carried out over the past decade.

The third objective is to identify areas of research which have been sufficiently addressed and to distinguish these from areas where further study is required. The purpose of this objective is to provide guidance for establishing priority areas on which to focus activities and resources for future research on residential renovation.

---

(1) CMHC Terms of Reference for this study.

1.3 Definition of Residential Renovation

For the purposes of this report, *renovation* is defined as a set of *activities* performed on an existing residential structure which does any of the following:

- sustain the structure's current physical condition by regular maintenance;
- increase its soundness and safety by replacing or fixing components;
- improve its physical state beyond its original condition;
- modify it to increase or reorganize its living space;
- alter it to meet special needs of its occupants (e.g., barrier-free access for the physically disabled); or
- convert it to change its number of self-contained units.(1)

This definition of renovation is consistent with the interpretation in CMHC's report entitled Residential Renovation Overview. Renovation as described in that overview "encompasses a broad range of activities undertaken to physically maintain or alter housing."(2) These activities include on-going maintenance, minor or major repairs, replacements, improvements, additions, and conversions.(3) Each of these activities are identified in CMHC's report according to the physical impacts they have on dwellings.

While renovation has been defined above as a set of activities which affect physical conditions of housing, it can also be described in the context of its role in the housing market, for example as a business activity, as a means of heritage preservation, or as a consumer choice. The focus on renovation research in the following segments of this report includes issues which are directly related to the above definition as well as issues that cover the broader context of renovation as a component of the housing market, both from the perspective of producers and consumers.

1.4 Approach

The approach taken in this study to review the research on residential renovation involves the following.

A Literature Search and Review

Since this study is essentially meant to document the status of existing research and its results, the approach taken for the project was *firstly* to review the existing literature on residential renovation. In doing this, two basic steps were carried out : (i) identification of sources and references, (ii) review of identified materials.

---

(1) "Conversion" could also mean changing a building from non-residential to residential use. Definitions of key terms used in the report are included in Appendix B.

(2) Residential Renovation Overview: Program Evaluation Report, Program Evaluation Division, Canada Mortgage and Housing Corporation, Ottawa, April 1988.

(3) *Ibid.*

The main source of information regarding research on residential renovation was the Canadian Housing Information Centre (CHIC) located at CMHC's national office in Ottawa. Over 200 references were reviewed from CHIC's collection.

In addition to CHIC, fifteen computerized reference sources were examined. From these sources title listings of relevant research were generated based on an in-depth search of pertinent keywords. More information on the literature search and review process, and on sources and keywords, is provided in Part II of this report.

Compilation of Relevant Information Into a Computerized Database

In order to facilitate the analysis of the anticipated large number of references on renovation research undertaken over the past decade, it was deemed necessary at the outset to develop a computerized database. To develop this database certain key data elements were chosen to extract the essence of each reference and to ensure consistency in the review process. While the establishment of the residential renovation database was primarily intended to serve the review process, it is also a useful by-product for other researchers especially if it is periodically updated. More details regarding the development and use of the database are provided in Part II.

The residential renovation database was developed using the dBASE III PLUS software, which is a well-recognized standard for data management systems. A new version called dBASE IV is soon to be released by its producers, Ashton-Tate. The programs written in dBASE III PLUS are 100 per cent upwardly compatible with dBASE IV. Thus it will be possible to update the renovation database without modification using dBASE IV, and to benefit from the state-of-the-art features of the new version.

Interviews with Knowledgeable Individuals

Several representatives from the Canadian public and private sectors, with expertise in the area of residential renovation, were consulted for this study.(1) A series of interviews were carried out to solicit the opinions of these knowledgeable individuals.

The framework for the interviews involved the following areas of discussion:

- identification of research work carried out;
- assessment of impact of results of research;
- priorities for research in residential renovation;
- areas of research which have been sufficiently covered;
- gaps in research based on perceptions of need; and
- quality of research.

Interviews were carried out as informal discussions either in person or over the telephone. Since the individuals interviewed have different interests and expertise in the field of residential renovation, each interview focused on the particular interviewee's experience, but within the general framework

(1) A list of the names of persons consulted is provided in Appendix A.

established by the above areas of discussion. The comments made during these interviews were taken into consideration in the preparation of this report.

1.5 Residential Renovation Overview

As mentioned earlier, residential renovation activity in Canada has increased steadily over the past two decades. Among the main reasons why this trend has occurred are the following:

- emergence of residential renovation as a relatively less-expensive housing option, given rapid increases in the costs of new construction and land fueled by periods of high inflation;
- advent of older, central-city housing as an alternative to new suburban construction, due to changes in consumer life-style preferences and heritage attitudes, and due to higher commuting costs to and from the suburbs;
- greater concern and attention to energy efficiency improvements, particularly since the mid-1970s and during the first half of the 1980s;
- changes in the demographic make-up of the Canadian population, leading to different emphases on shelter needs -- e.g., special housing for seniors;
- growing awareness and responsiveness of the housing industry to the potential demand for renovation;
- increased emphasis by government in responding to the need for preserving and upgrading the existing housing stock.

The growth in residential renovation in Canada is likely to continue well into the future.(1) According to the 1985 Statistics Canada Survey of Household Facilities and Equipment (HFE),(2) over one million dwelling units in Canada (i.e., 12.5 per cent of dwellings) are considered by their occupants to require *major* repairs (see Chart 2). The 1986 National Housing Study (NHS) carried out by CMHC also provided estimates of repair needs which indicate that 10 per cent of the lowrise housing stock is in need of *major* repairs.(3) If *minor* repairs are included in the figures, the total estimate of repair needs then ranges from 27 per cent (HFE) to 46 per cent (NHS).(4) Many of the units that are in

---

(1) Clayton, *op. cit.*

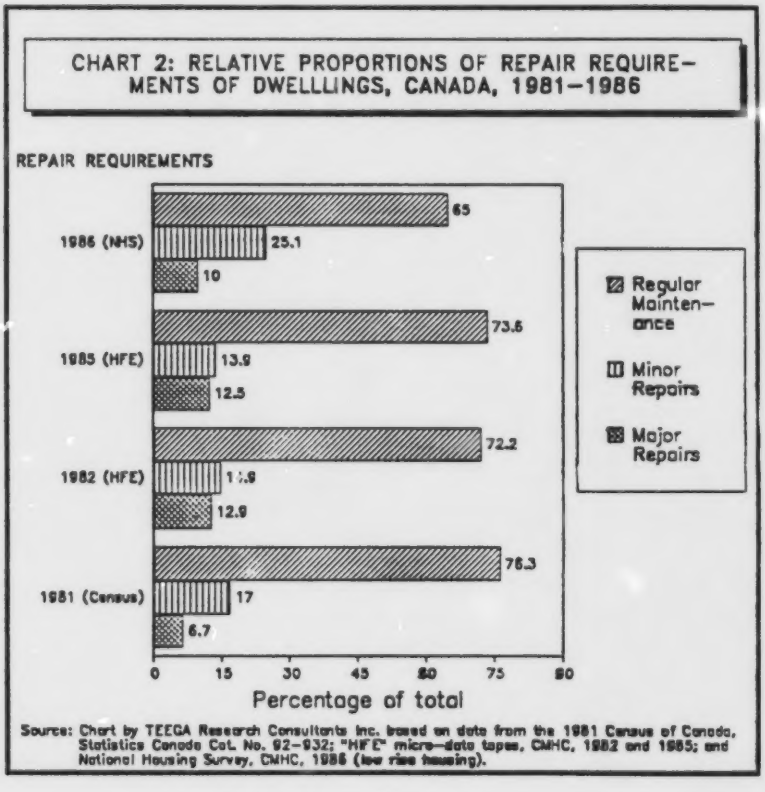
(2) The data of the Survey of Household Facilities and Equipment are nationally representative and are collected by trained interviewers either over the telephone or in person.

(3) Residential Renovation Overview, *op. cit.*

(4) For definitions of "major" and "minor" repairs see Appendix B.

need of repairs are apparently occupied by middle and upper-income households (NHS). This suggests that even though there have been dramatic increases in residential renovation expenditures during the 1970s and 1980s, there are continuing challenges and opportunities in this segment of the housing industry.

Chart 2 provides data on repair needs from three different sources: the Census of Canada (1981), the Survey of Household Facilities and Equipment (1982 and 1985), and the National Housing Study (1986). Each of these sources allow for the measurement of national dwelling conditions by including questions on the state of housing repair. These three sources provide different estimates

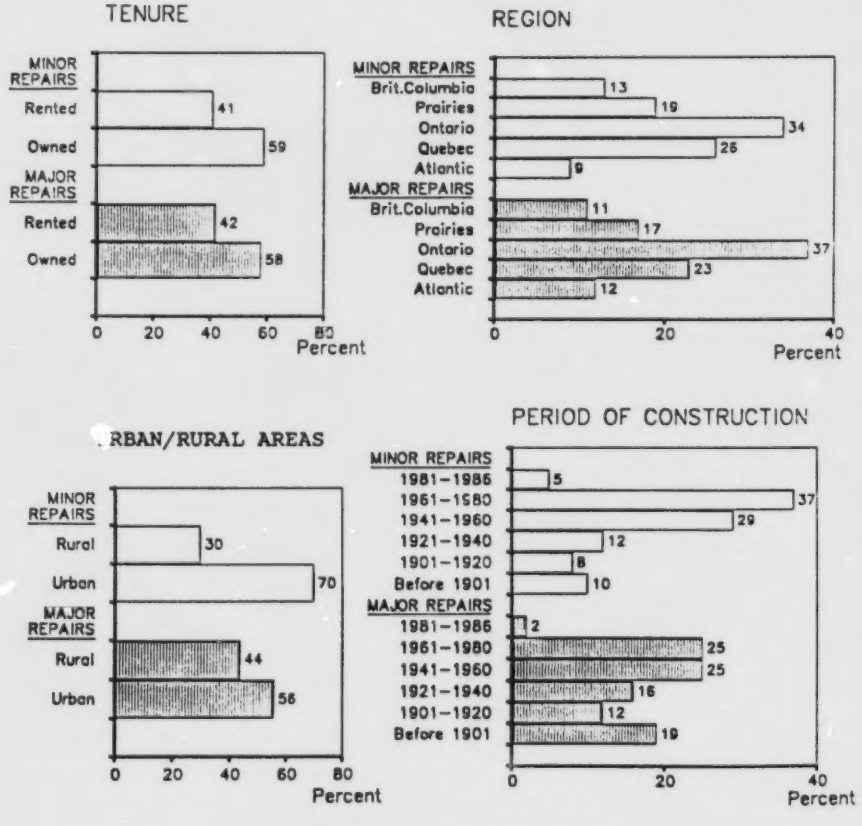


of the relative severity of repair requirements (i.e., the proportion of housing in need of major versus minor repairs). For example, the Census reported that in 1981 6.7 per cent of dwellings (or 551,755 units) required major repairs, while the 1982 HFE reported that 12.9 per cent (or 1,063,000 units) required major repairs. Such discrepancies in the estimates of needs have resulted from the differences between the surveys -- particularly due to variations in sample sizes, data collection techniques, and the wording of questions in the survey instruments.

Charts 3 and 4 present some highlights regarding the incidence and distribution of repair requirements in Canada.

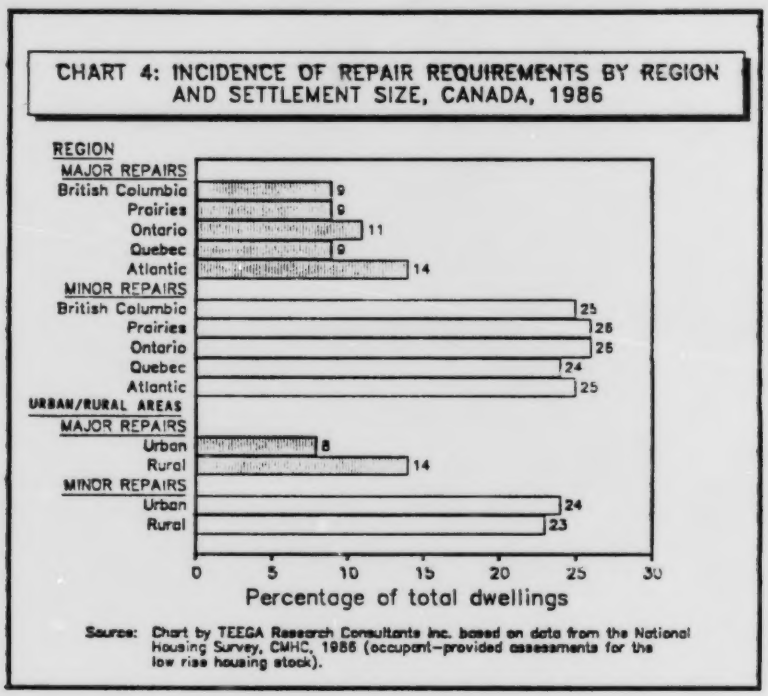
- There are relatively more homeowner units (58 per cent) than there are rental units (42 per cent) requiring major repairs.
- While the *incidence* of major repair needs is highest in the Atlantic Region and in rural areas, at 14 per cent respectively (see Chart 4), most of the units requiring major repairs are located in Ontario and Quebec and in urban areas (Chart 3).
- Ontario accounts for 37 per cent and Quebec accounts for 23 per cent of the units requiring major repairs in Canada.

CHART 3: DISTRIBUTION OF REPAIR REQUIREMENTS, CANADA, 1986



Source: Chart by TEEGA Research Consultants Inc. based on data from the National Housing Survey, CMHC, 1986 (occupant-provided assessments for the low rise housing stock).

- In general, as shown in Chart 4, the incidence of *minor* repair needs is consistent across regions and settlement sizes, at about one quarter of the housing stock.

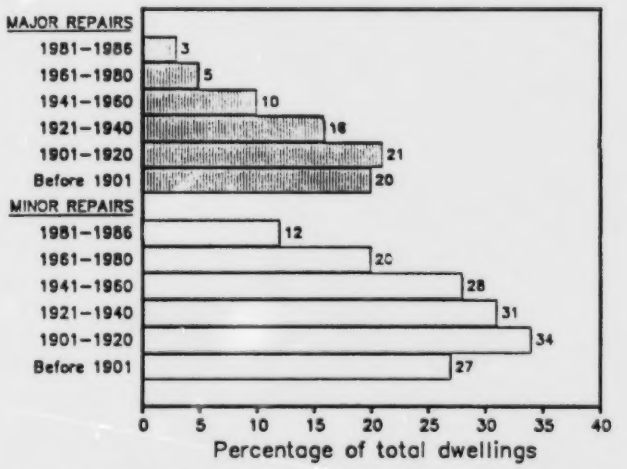


- The distribution of the housing stock by its age (period of construction), as shown in Chart 3, clearly indicates that major and minor repair needs are not restricted to older housing units.

- Twenty-seven per cent of the units requiring major repairs and 42 per cent of the units requiring minor repairs were built *after* 1960.

- The incidence of repair needs by the age of dwellings are shown in Chart 5. The incidence of minor repair needs for dwellings built after 1980 (12 per cent) emphasizes the point that regular maintenance and repairs are necessary for the preservation of new dwellings as well as old.

CHART 5: INCIDENCE OF REPAIR REQUIREMENTS BY PERIOD OF CONSTRUCTION, CANADA, 1986



Source: Chart by TEEGA Research Consultants Inc. based on data from the National Housing Survey, CMHC, 1986 (occupant-provided assessments for the low rise housing stock).

It is highly likely that residential renovation will remain an important focus of the Canadian housing sector for years to come -- not only because of consumer choices motivated by economic and life-style factors, but also because of the practical necessities of upgrading the portion of the existing housing stock which has been reported to be in need of major repairs. Focus on residential renovation is also likely to increase as growing numbers of Canadians become more aware of the long-term benefits of preventing the deterioration and improving the quality of the existing housing stock.

II. DEVELOPMENT OF THE RESIDENTIAL RENOVATION DATABASE

In this part of the report the process and scope of the literature search and the database design and contents are described. In addition, the categories of "residential renovation" and keywords as identified for the review are presented.

2.1 Literature Search

Process

The search process involved three basic steps : (i) a search of published bibliographies; (ii) an online computer search of bibliographic databases; and (iii) identification of references during discussions with knowledgeable individuals.

Effective searching for references required an appropriate classification scheme of the components of residential renovation. To exemplify this requirement a sample output of Carleton University's online search system (CUBE) is shown below. This sample represents only a small portion in one stage of a "tree" search for entries related to "housing". Obviously searching

TABLE 1: SAMPLE COMPUTER OUTPUT FROM ONLINE SEARCH

```
 1. HOUSING SUBSIDIES--UNITED STATES..................................... 4
 2. HOUSING SUBSIDIES--UNITED STATES--CONGRESSES.......................... 1
 3. HOUSING SUBSIDIES--UNITED STATES--EVALUATION--CONGRESSES..... 1<---
 4. HOUSING SUBSIDIES--WISCONSIN--BROWN COUNTY............................ 1
 5. HOUSING SURVEYS...................................................... 8
 6. HOUSING SURVEYS--HANDBOOKS,MANUALS,ETC............................... 1
 7. HOUSING SURVEYS--MANITOBA--WINNIPEG.................................. 1
 8. HOUSING SURVEYS--ONTARIO............................................. 2
 9. HOUSING SURVEYS--ONTARIO--SOCIO-ECONOMIC CHARACTERISTICS..... 1
10. HOUSING SURVEYS--QUEBEC(PROVINCE)--MONTREAL.......................... 1
TO DISPLAY,enter DI # (entry no. on left,e.g. DI 8) or DI(entry at <---)
TO BROWSE,enter B for backwards or up, enter F for forwards or down

 1. HOUSING SURVEYS--ONTARIO--SOCIO-ECONOMIC CHARACTERISTICS..... 1
 2. HOUSING SURVEYS--QUEBEC(PROVINCE)--MONTREAL.......................... 1
 3. HOUSING--SWEDEN--FINANCE............................................. 1<---
 4. HOUSING--TANZANIA.................................................... 1
 5. HOUSING TECHNOLOGY................................................... 1
 6. HOUSING TECHNOLOGY--CONGRESS......................................... 1
 7. HOUSING--TURKEY--ANKARA.............................................. 1
 8. HOUSING--TURKEY--ANKARA--HISTORY...................................... 1
 9. HOUSING--TURKEY--ANKARA--HISTORY--17TH CENTURY........................ 1
10. HOUSING--TURKEY--KAYSERI--HISTORY..................................... 1
TO DISPLAY,enter DI # (entry no. on left,e.g. DI 8) or DI(entry at <---)
TO BROWSE,enter B for backwards or up, enter F for forwards or down
```

at this general level eventually yields too much information which is unfocused and difficult to consume. To effectively search for information on residential renovation requires a clear sorting out of discrete, overlapping and unrelated concepts, in order to distinguish between the various important and extraneous items of information and references. Thus a list of appropriate categories and

related keywords were identified and used for the selection of references to be reviewed and included in the database. These categories and keywords are presented and discussed in section 2.3.

Scope

The selection of references during the literature search focused on documents published during the period since 1978 to the present. The 1978 cut-off is somewhat arbitrary, but it does allow for the identification of a decade of research work which provides information that to a large extent is still of contemporary relevance. Some of the research carried out *prior* to the cut-off date was considered for inclusion in the database. This latter work, however, was left-out since it generally tended to be of lesser interest, given current issues and concerns about residential renovation in Canada.

The *geographic* scope of the search was centred around research carried out in North America. However, some European sources were examined and a few references from these sources were identified and are included in the database (see the statistics on the database in Part III).

Sources

The primary source of reference information for research on residential renovation was the Canadian Housing Information Centre at CMHC. CHIC provided an up-to-date listing of all its holdings relevant to the subject being studied. These holdings were then reviewed systematically and the pertinent information was extracted using a pre-designed data collection instrument (see Appendix C).

Additional references were also identified during the discussions with the individuals who were consulted for this study. These latter references were generally reports on work more recently completed -- during the past two to three years.

The online computer search of references included databases available through the Canada Institute for Scientific and Technical Information (CISTI) of the National Research Council. CISTI provides a number of databases online through its CAN/OLE system which is accessible from CHIC -- in fact, most of the online searches were carried out through CHIC terminals.

CAN/OLE allows Canadians to identify, locate and order documents on almost any topic. Through CAN/OLE access to the major North American scientific and technical abstracting and indexing services is available. In addition, through CAN/OLE the Directory of Federally Supported Research in Universities, which is published annually, is available online as the IEC database. This directory is a compilation of Canadian university research projects as reported to the Information Exchange Centre at CISTI. Also included in this directory are contracts to Canadian universities awarded by Supply and Services Canada on behalf of various federal government departments and agencies.

A list and description of the databases which have been searched for references is provided in Table 2 on the following two pages.

TABLE 2: DESCRIPTION OF THE ONLINE COMPUTER DATABASES THAT WERE SEARCHED

DATABASE NAME	DESCRIPTION(1)	ORIGINATOR
CCN	The CCN database contains references of conferences, monographs and technical reports in science and technology held by CISTI and its branch facilities. The majority of references date from 1978 to the present.	National Research Council Canada, Ottawa
MICROLOG	MICROLOG is an index and document delivery system providing access to current Canadian report literature of reference value from government and institutional sources. It includes Canadian federal, provincial, and local government research institutions, professional associations and special interest groups.	Micromedia Limited, Toronto
NRCPUBS	The NRCPUBS database provides access to publications written by NRC staff or for NRC. The file contains references for journal articles, reports, conference papers, books and other items. The printed equivalent of the NRCPUBS database is Publications of the National Research Council of Canada.	Information Exchange Centre, CISTI, Ottawa
CANREG	CANREG contains information on the professional specialization, current research projects and selected publications of Canadian social scientists, supplied to CANREG on a voluntary basis. The database includes a broad spectrum of researchers from the academic, government and private industry sectors.	Social Science Computing Laboratory, University of Western Ontario, London
CONL CAN/MARC	The CONL file covers all subjects connected with Canada. It includes a wide variety of material: monographs, theses, and federal and provincial government publications. Serials and monographic series are excluded.	National Library of Canada, Ottawa
IEC	The IEC database is a compilation of university research projects as reported to the Information Exchange Centre (IEC) by granting agencies of the federal government. Also included are contracts to Canadian university researchers awarded by Supply and Services Canada on behalf of various departments of the federal government.	Information Exchange Centre, National Research Council, Ottawa
CODOC	The CODOC database provides access to the combined government publications collections of 11 academic libraries in Ontario. The database also includes research and technical reports, either issued by government agencies or sponsored by government grants.	Collections from 11 academic libraries in Ontario, University of Guelph, Guelph

(CONTINUED)

TABLE 2 : (CONTINUED)

DATABASE NAME	DESCRIPTION(1)	ORIGINATOR
QUESTEL	This is a French language database which includes articles and periodicals published in Quebec.	Telesystemes, (IST-Informatique Inc.), Quebec
ACOMPLINE-35	Produced in Europe, ACOMPLINE contains documentation needed by researchers involved in urban matters. ACOMPLINE contains many unique references predominantly of British origin but also coming from other European countries and from America.	Greater London Council Research Library, London, Great Britain
NTIS	This is the National Technical Information System which serves as the primary source for the public dissemination of U.S. Government-sponsored research, development, engineering reports, and machine processable data files and related software. The data for this source comes from over 300 U.S. agencies. The bi-weekly Government Reports Announcements and Index is the main printed equivalent.	National Technical Information Service, U.S. Dept. of Commerce, Springfield, Virginia, U.S.A.
HUD USER	This database contains abstracts of reports on housing and urban development produced by HUD's office of policy development and research. Also includes documents and literature from other divisions within HUD, other federal and state agencies, and commercial publishers.	HUD USER, Germantown, Maryland, U.S.A.
ESA-QUEST	This database provides information on reports and government documents published in the United Kingdom and Europe.	Planning Exchange
IBSEDEX-88	This database covers all aspects of the mechanical and electrical services in buildings. Information is taken from journal articles, reports, conference papers, standards, books and unpublished communications.	Building Services Research and Information Association, Berkshire, England
BRIX-77	The BRIX database contains references, with abstracts in many cases, to books, conference proceedings, journal articles and research reports dealing with building research topics. The research reports come from organizations throughout the world.	Building Research Station, Garston England
PASCAL-14	Worldwide literature of all types is entered into the file normally in its original language with a French translated title and abstract. The main literature sources are serials, doctoral and master theses, R&D reports and conference proceedings.	Centre national de la Recherche Scientifique, Paris, France

(1) Descriptions of databases provided in this table are abridged versions of the descriptions provided by the originators.

2.2 Database Design and Contents

The database developed for the review of research on renovation was designed using the dBASE III software system. This database management system is upwardly compatible with the soon-to-be-released dBASE IV state-of-the-art package (see section 1.4). This system provides for flexible data entry and retrieval processes -- including window and menu editing, cataloguing of references, automatic index maintenance, and organization of files. In addition to these features, the database developed for this study using dBASE also allows for multiple keyword searches and printer support for reference listings.

The items of information gathered on each identified reference in the review are as follows:

- identification of source listing;
- title of reference;
- researcher(s)/author(s);
- organization sponsoring research;
- status -- i.e., completed, under way, or canceled;
- geographical scope of the work;
- bibliographic information -- e.g., publishing company, date of publication, etc.;
- objectives of the study;
- questions addressed by the study;
- method of research used; and
- summary of results.

In addition to the above items of information, the following were added to each database record:

- relevant study research category; and
- topical keyword(s) highlighting the particular focus of the reference.

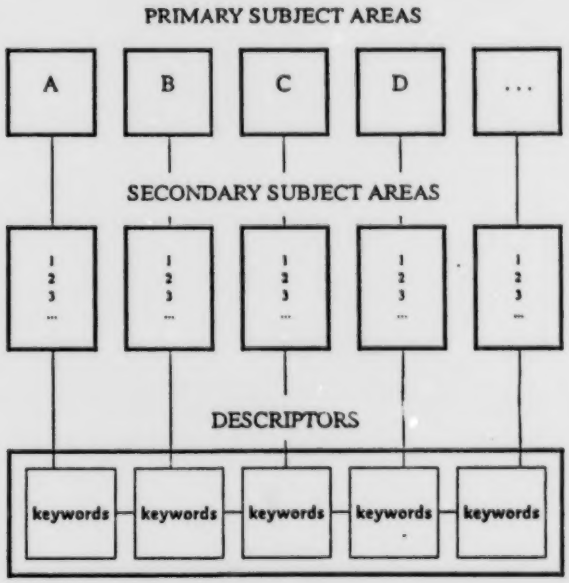
Currently there are 403 records included in the database. A sample database record is provided in Appendix D and a complete list of titles is contained in Appendix E.

More detailed information on the database will be available in a separate report, which is being prepared by TEEGA Research Consultants Inc. for CMHC. This separate report will be a user reference to explain the process of searching, listing and updating information based on the renovation categories and keywords used in this study.

2.3 Classification

A simple classification scheme was adopted to achieve a structural and conceptual cohesiveness for this study. The *structural basis* of this scheme is made up of primary subject areas, secondary subject areas, and a set of 'descriptors' or keywords, as shown in Figure 1.

FIGURE 1: STRUCTURAL BASIS OF CLASSIFICATION SCHEME



Keywords are selected in this scheme empirically for their ability to express the information content of individual research documents. An advantage of using keywords in combination with a simple hierarchical subject-area scheme is that keywords provide greater accuracy and detail in the representation of specific research work. Another advantage is that keywords allow for the cross-referencing of documents which are classified under different subject headings but have the same keyword(s) as a common denominator.

While having a *structural basis* is a necessary part of the classification scheme, by itself it is obviously not sufficient to identify research on renovation. A *conceptual basis* is also required in order to identify what documents are about and how they should be grouped.

What is meant here by a *conceptual basis* is simply the particular choice of headings and what they signify for each of the primary and secondary categories of the classification scheme. It could be expected, at first thought, that the chosen conceptual basis would closely conform to the definition of residential

renovation presented in section 1.3. However, the body of research on renovation does not neatly fall into the basic components of this definition -- i.e., maintenance, repairs, replacements, improvements, additions, modifications, and conversions. Instead, much of the research work appears to have focused on issues which directly or indirectly encompass all or some of these components at the same time. Consequently, because of this seemingly indistinct delineation of renovation components in the body of research they are included in the classification scheme as descriptors or keywords. Thus, a research document is first classified according to its general focus, then assigned keywords which identify its scope or coverage of the components of the definition of renovation. Other keywords are also assigned when appropriate, to identify additional features of the research document.

Generically, for this study, research on residential renovation is grouped into six broad categories:

- role of government;
- industry and market studies;
- impacts and effects of renovation;
- housing conditions and needs;
- technology research; and
- general information.

Table 3 presents the selection of primary and secondary categories which together make-up the classification scheme adopted for this study. Distinctions between the categories are of course not always in practice as easily separated as might be implied by the classification scheme. However, it is important to make delineations which highlight the different shadings of each category -- otherwise there will be no underlying basis from which to proceed with a review. An index of selected keywords used to represent the contents of research documents is provided in Table 4.

Each record in the study database contains a category field and keywords (up to six) through which information storage and retrieval can take place. Statistics on the frequency of titles by category, year, and country are contained in Part III of this report. The descriptive information contained in the database has contributed as a valuable resource in the discussion of research on residential renovation presented in Parts IV and V.

TABLE 3 : PRIMARY AND SECONDARY SUBJECT AREAS

CODE	PRIMARY SUBJECT AREA	CODE	SECONDARY SUBJECT AREA
A	**Role of Government**		
		A1	Policy and Program Development
		A2	Organization and Management
		A3	Finance
		A4	Regulations and Standards
		A5	Legislation
		A6	Evaluation
		A7	Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
B	**Industry and Market Studies**		
		B1	Structure and Operations
		B2	Finance
		B3	Supply and Demand
		B4	Analysis of Trends, Prospects, Determinants, etc.
		B5	Other (Processes, Entrepreneurship, etc.)
C	**Impacts and Effects**		
		C1	Economic Impacts and Effects
		C2	Social Impacts and Effects
		C3	General Consequences and Case Studies
D	**Housing Conditions and Needs**		
		D1	Data Collection
		D2	Measurement, Methodologies
		D3	Analysis of Trends and Prospects
		D4	Other (Special Needs, Local Studies, etc.)
E	**Technology Research**		
		E1	Technology Development
		E2	Processes and Applications
		E3	Evaluation
F	**Other Titles**		
		F1	Bibliographies
		F2	Guides
		F3	Conferences, Seminars, etc. (Proceedings)
		F4	International Studies
		F5	Training Packages
		F6	Research Designs and Needs
		F7	Catalogues, Inventories, Terminology

TABLE 4 : INDEX OF SELECTED KEYWORDS

add/addition/additions
adequate/adequacy
administer/administration
afford/affordability
agency
alter/alteration
amenities
analyse/analysis
application
architect/architecture
automation
batch
benefits
bibliography
by-laws
care
catalogue
causes
client/clients
CMHC
code/code-enforcement
community
comparative
condition/conditions
conference
conserve/conservation
constraints
consult/consultation
consumer/consumption
contractor
control
convert/conversion
costs/cost analysis
crowding
delivery
demand
demographics
demolish/demolition
demonstrate/demonstration
design
deteriorate/deterioration
determinants
develop/development
disabled
displace/displacement
disseminate/dissemination
economic/economics/economies
educate/education
effective/effectiveness
effects
efficient/efficiency
employ/employment
energy/energy-conservation
evaluate/evaluation
expenditures
extend/extension
exterior
federal
finance/financing
fund/funds/funding
future
gentrify/gentrification
government/governmental
grant/grants
growth
guide
guidebook
guideline
heritage
history/historical
homeowner/homeownership
homesteading
impact/impacts
improve/improvement
Indian
industry
infill/infill-housing
information
inner-city
innovate/innovation
inspect/inspection
insure/insurance
interest-rate
interior
international
inventory
issues
land
landlord
legal/legalities
legislate/legislation
lend/lending/lender
leverage/leveraging
loan
location
maintain/maintenance
major
manage/management
manual
manufacturer
market
material
measurement
methodology/methodologies
minor
model
modernize/modernization
modify/modification
mortgage
municipality/municipal
national
Native
need/needs
neighbourhood
non-profit
on-reserve
operation
organize/organization
overview
ownership
physical
policy/policies
post-occupancy
preserve/preservation
price/prices
process
product/products
profile
program/programs
prospects
province/provincial
public housing
quality
questionnaire
rebuild/rebuilding
receivership
recondition/reconditioning
reconstruct/reconstruction
recycle/recycling
redevelop/redevelopment
refurbish/refurbishment
regulate/regulation
rehabilitate/rehabilitation
remodel/remodeling
renew/renewal
renovate/renovation
renter/rental
repair/repairs
research
reserve/reservation
restore/restoration
retrofit/retrofitting
review
revitalize/revitalization
role
room/rooming-houses
rural
sample/sampling
savings
self-help
seniors/senior-citizens/elderly
single-family
social
society
standard/standardize
statistics/statistical
strategy/strategies
structure/structural
sub-standard
subsidy/subsidies
suitable/suitability
supplier
supply
survey
symposium
targets/targeting
tax/taxes/taxation
technique/techniques
technology/technologies
tenant/tenants
third-sector
train/training
transfer
trend/trends
upgrade/upgrading
urban
warranty
white-paint/white-painting
zone/zoning

III. ANALYSIS OF AREAS OF RESEARCH

In this part of the report highlights of an analysis of the contents of the residential research database are presented. The extent of research carried out is identified by category, year, and country. This is a relatively simple analysis, but nonetheless it provides a basic overview of the research carried out over the past decade. It should be noted that the database created for this study is only a sample of the relevant research. However, the search procedure for identifying titles was rigorous and comprehensive. Several sources were searched (see section 2.1) and the framework for establishing relevant research conformed to the broad definition of residential renovation provided in section 1.3. The Canadian segment of the sample is the largest, since the main focus of the study was on this country's research.

An important caveat about the review provided in the following sections of this report is that a large part of the research work carried out does not necessarily focus on single areas of investigation -- for example, many policy studies deal with a variety of issues which traverse several of the classification categories. Such studies in practice are not easily classified and could end up in one category or another depending on the amount of coverage in the studies given to specific research areas, and of course depending on the conceptual selection basis used by the classifier. Nonetheless, it is necessary to draw distinctions which highlight the most salient aspects of each study if an analysis of research activities and priorities is to be feasible. The conceptual basis used for classifying documents in this study is anchored on our broad definition of residential renovation and on the 29 distinct categories identified for the classification scheme (Table 3).

3.1 Categories

- Table 5 shows the frequency of titles by each research category. The largest number of studies have focused on the role of government in residential renovation. About 33 per cent of studies carried out are in this area.

- In comparison, studies which are predominantly focused on private industry and the market make up 15 per cent of the total.

- Research centred around measuring the impacts and effects of renovation also make up about 15 per cent of the total, and those studies covering housing conditions and needs account for about 13 per cent.

- Within the group of studies on the role of government, evaluations and policy and program development studies are the most frequent. The least frequent appear to be studies focused specifically on government financing of renovations and on legislation dealing with renovation activities.

- In the group of studies focusing on industry and market issues, the most frequent types of research carried out are reviews of structure and operations of the industry and general trends about the market. Studies dealing with private sector financing and the dynamics of supply and demand are the least frequent.

TABLE 5: ANALYSIS OF DATABASE -- FREQUENCIES OF TITLES BY CATEGORY

CATEGORY		Frequency	Per Cent
A.	ROLE OF GOVERNMENT		
A1	Policy and Program Development	30	7.4
A2	Organization and Management	24	6.0
A3	Finance	9	2.2
A4	Regulations and Standards	15	3.7
A5	Legislation	3	.7
A6	Evaluation	31	7.7
A7	Other (Analysis of Trends, Expenditures, Strategies,etc.)	19	4.7
	SUB-TOTAL	131	32.5
B.	INDUSTRY AND MARKET STUDIES		
B1	Structure and Operations	21	5.2
B2	Finance	6	1.5
B3	Supply and Demand	7	1.7
B4	Trends, Prospects, Determinants	21	5.2
B5	Other (Processes, Entrepreneurship, etc.)	5	1.2
	SUB-TOTAL	60	14.9
C.	IMPACTS AND EFFECTS		
C1	Economic Impacts and Effects	11	2.7
C2	Social Impacts and Effects	17	4.2
C3	General Consequences and Case Studies	34	8.4
	SUB-TOTAL	62	15.4
D.	HOUSING CONDITIONS AND NEEDS		
D1	Data Collection	6	1.5
D2	Measurement, Methodologies	22	5.5
D3	Analysis of Trends and Prospects	19	4.7
D4	Other (Special Needs, Local Studies, etc.)	6	1.5
	SUB-TOTAL	53	13.2
E.	TECHNOLOGY RESEARCH		
E1	Technology Development	10	2.5
E2	Process and Applications	31	7.7
E3	Evaluation	3	.7
	SUB-TOTAL	44	10.9
F.	OTHER TITLES		
F1	Bibliographies	10	2.5
F2	Guides	21	5.2
F3	Conferences, Seminars, etc.	5	1.2
F4	International Studies	5	1.2
F5	Training Packages	4	1.0
F6	Research Designs and Needs	5	1.2
F7	Catalogues, Inventories, Terminology	3	.7
	SUB-TOTAL	53	13.2
	TOTAL	403	100.0

- Activities centred mainly on actual data collection, in the housing conditions and needs category of research, represent a relatively small proportion (6 out of 53 studies) of the work carried out in this area. The majority of the work in this area is focused on analysis (19 studies) and measurement and methodological issues (22 studies).

3.2 Years

- Table 6 shows that for the most part research work has been evenly distributed over the years since 1978 to the present. The main exceptions of interest are the 1987 and 1988 years. In 1987 relatively fewer studies (6.5 per cent of the total decade) were carried out compared to the previous 8 years (each with 10 to 12 per cent of the total). The 1988 figure of 1.2 per cent is not really properly representative of this year's work -- partly because the year is not yet over and partly because many of the 1988 completed titles have not yet appeared in the bibliographic databases searched.

TABLE 6: ANALYSIS OF DATABASE -- FREQUENCIES OF TITLES BY YEAR

YEAR	Frequency	Per Cent
1978	23	5.7
1979	41	10.2
1980	50	12.4
1981	43	10.7
1982	43	10.7
1983	50	12.4
1984	43	10.7
1985	39	9.7
1986	40	9.9
1987	26	6.5
1988	5	1.2
TOTAL	403	100.0

- Table 7 provides a distribution of the frequency of titles by general categories and by year. Studies centred around the role of government, industry and market studies, and analyses of impacts and effects all have been as frequent during the first part of the decade as in the second. On the other hand, studies focused on housing conditions and needs have declined from 16 per cent of the total in the first half to 11 per cent of the total in the second half of the decade. Conversely, studies focused on technology research have increased from 8 per cent to 14 per cent.

TABLE 7: ANALYSIS OF DATABASE -- FREQUENCIES OF TITLES BY CATEGORY AND YEAR

CATEGORY	1978-1982		1983-1988		TOTAL	
	#	%	#	%	#	%
A. ROLE OF GOVERNMENT	64	32	67	33	131	33
B. INDUSTRY & MARKET STUDIES	30	15	30	15	60	15
C. IMPACTS AND EFFECTS	30	15	32	16	62	15
D. HOUSING CONDITIONS & NEEDS	31	16	22	11	53	13
E. TECHNOLOGY	16	8	28	14	44	11
F. OTHER TITLES	29	15	24	12	53	13
TOTAL	200	100	203	100	403	100
Per Cent		50		50		100

3.3 Countries

- Table 8 shows the frequency of titles in the research database by country. The largest proportion of the sample is Canadian (45 per cent of the total). Studies carried out in the United States represent the next largest proportion of the sample (37 per cent). The titles selection procedure of the literature search was biased by design towards Canadian and United States titles -- thus the smaller proportion of other titles, which were deemed of interest to include in the database, do not appropriately represent the body of work in the international arena (i.e., outside of Canada and the U.S.).

TABLE 8: ANALYSIS OF DATABASE -- FREQUENCIES OF TITLES BY COUNTRY

COUNTRY	Frequency	Per Cent
Canada	181	44.9
United States	150	37.2
United Kingdom	45	11.2
North America(1)	7	1.7
International(2)	20	5.0
TOTAL	403	100.0

(1) Includes studies covering both Canada and the United States.
(2) Excludes studies covering the United Kingdom, Canada, and the United States

- Table 9 provides a distribution of the frequency of titles by general categories and by countries. The role of government is the largest area of research in both Canada and the United States. Canada, however, appears to have focused somewhat less on this area than the U.S. -- about 30 per cent of the total in Canada compared to about 35 per cent of the total in the U.S.

- On the other hand, Canada has focused more on industry and market studies than has the U.S. (18 per cent of studies in Canada compared to 12 per cent in the U.S.) and on housing conditions and needs (15 per cent compared to 11 per cent respectively).

- The proportion of studies focused on the impacts and effects of renovation have been relatively the same in both Canada and the U.S.at 16 per cent of the total.

TABLE 9: ANALYSIS OF DATABASE -- FREQUENCIES OF TITLES BY CATEGORY AND COUNTRY

CATEGORY	CANADA(1)		U.S.A.		OTHER(2)		TOTAL	
	#	%	#	%	#	%	#	%
A. ROLE OF GOVERNMENT	57	30	52	35	22	34	131	33
B. INDUSTRY & MARKET STUDIES	33	18	18	12	9	14	60	15
C. IMPACTS AND EFFECTS	31	16	24	16	7	11	62	15
D. HOUSING CONDITIONS & NEEDS	28	15	17	11	8	12	53	13
E. TECHNOLOGY	26	14	13	9	5	8	44	11
F. OTHER TITLES	13	7	26	17	14	22	53	13
TOTAL	188	100	150	100	65	100	403	100
Per Cent		48		37		16		100

(1) Includes seven studies designated as "North America" in the database.
(2) Includes studies designated as "United Kingdom" and "International".

IV. COMMENTS ON SELECTED RESEARCH

This segment of the report provides comments on selected residential renovation research work. The selection represents only a small indication of the information gathered for the research database and review. In addition, while the previous segment provided some statistics on the type of research that has been carried out over the past decade, this segment lists some of the predominating strands of this work.

4.1 Role of Government

In this category, the main areas of research concentration have been the following :

- review of rationale of government involvement in residential rehabilitation
- assessment of policy goals and government assistance
- evaluation of federal government programs and examination of program designs
- consultation between government and housing sector representatives
- program delivery and management
- alternative renovation approaches such as batch rehabilitation
- case studies of community development and neighbourhood rehabilitation
- financing residential renovation (most of the studies in this area have been in the U.S.A.)
- impacts of regulations and standards.

Studies which have been completed during the past decade dealing with policy and program development have tended to be broad in scope, dealing with a variety of areas which relate to several of the categories presented in this report. However, the main objectives of these studies have tended to focus on the general designations listed above.

Comments on Selected Research Studies:

Title: Consultation Paper on Housing Renovation
Origin: CMHC
Publisher: CMHC, Ottawa
Year: 1987

Comments: The objective of this work was that it should serve as a basis for discussions with individuals, and with producer and consumer interest groups regarding the role that government should play in private renovation markets and on the extent to which the RRAP program can be improved. The report includes an overview of the renovation market, discussion of issues to address, and program summary information.

The emphasis in this report is on rehabilitation and the role of government. It does not sufficiently deal with other components of renovation.

Title: The Renovation Consultation Process Round One Consensus and Round Two Options
Origin: CMHC
Publisher: CMHC, Ottawa
Year: 1988

Comments: This report was aimed at presenting the program alternatives for private market renovations and for the RRAP program options suggested during the first round of federal government renovation policy consultations. In addition, further comments were invited from interested organizations and individuals regarding preferred options. Questions addressed by the consultation process related to: estimation of need of repair; prevention of deterioration; consumer confidence in renovation services; RRAP objectives; principles of social housing assistance; rehabilitation standards and client ability to pay; and potential program designs.

The consultation approach has provided an appropriate forum for all parties concerned with housing issues across the country to provide input for program development, and for identification of issues and priorities for future policy and research decisions.

Title: Procedures for Batch Rehabilitation in Atlantic Canada
Origin: Gardner Pinfold Consulting Economists
Publisher: CMHC, Ottawa
Year: 1984

Comments: This study intended to determine whether existing delivery procedures for NHA homeowner RRAP should be modified to accommodate batch rehabilitation. The questions which were addressed dealt with the administrative structure required for batch rehab, legal implications, the potential market size, possible cost

savings, and operating procedures involved. The approach used in this study included interviews with contractors and delivery agents. Conclusions of the study suggest that housing market activity in specific areas could increase as a result of batch rehab, but that the attractiveness of this approach to homeowners, contractors, and delivery agents is uncertain.

The results of this study appear to be inconclusive. An examination of batch rehabilitation in other urban (or rural) settings could lead to different results.

Title: Evaluation of the Residential Rehabilitation Assistance Program
Origin: CMHC-Program Evaluation Division
Publisher: CMHC, Ottawa
Year: 1986

Comments: This research work was intended to measure how well the RRAP program encourages the repair of substandard housing and assists residents in need. The contributions and role of specific components of the program are examined and their impacts and effects are measured. Alternative design features are also considered. The empirical basis of the study includes physical inspections of dwellings and surveys of households, industry representatives and delivery agents. Among the conclusions of the study are: RRAP assistance is targeted to households in need; there is a continuing requirement for rehabilitation of the existing housing stock; the program has created jobs for the renovation industry; the effectiveness of the program is increased when combined with provincially sponsored programs; the program has contributed to improvements in residential energy efficiency.

This is a comprehensive study with most conclusions based on a rigorous evaluation research approach. The empirical basis of the study is original data collection through surveys and interviews with specialists in the rehabilitation business.

4.2 Industry and Market Studies

In this category, the main areas of research concentration have been the following :

- analysis of market forces
- industry profiles: including identification of structure and problems
- reviews of the roles of different actors in the industry
- surveys of the industry focusing on its structure and operations
- alternative financing techniques for renovation (mostly in the U.S.A.)

- analysis of demand for renovation products and services
- determinants of renovation activities (mostly in the U.S.A.)
- analysis of trends and prospects in the renovation industry.

Comments on Selected Research Studies :

Title: Review of Alberta's Home Renovation Industry
Origin: Copithorne, Reginald B.
Publisher: Colony Park Enterprises, Edmonton, Alberta
Year: 1984

Comments: This report provides an overview of the home renovation industry in Alberta, focusing on industry organizations, building material suppliers, home renovation contractors, new home contractors involved in the renovation business, and renovation industry trades. Research questions addressed relate to the activities of industry members, future market trends, attitudes toward renovation and possible assistance to encourage renovation. The research methods used were mail-out surveys and telephone and personal interviews with 156 industry members. The main conclusion is that the renovation industry is growing and maturing in Alberta. The specific dimensions of this growth are discussed in the report.

This is one of only a few studies over the past decade which have addressed issues specifically related to the structure and operations of the residential renovation industry.

Title: Final Report: Nova Scotia Residential Renovation Industry Study
Origin: DPA Group
Publisher: CMHC
Year: 1987

Comments: The objective of this study was to conduct exploratory research and acquire comprehensive data regarding the past and likely future structure and capacity of the residential renovation industry in Nova Scotia. A survey methodology was used to determine the industry structure and characteristics; extent of self-help; value, volume and type of work undertaken; influence of funding assistance; and likely future problems and activities in the residential renovation sector.

A number of conclusions emerged from this study about the nature of the industry, its capabilities and potential. Among the recommendations provided are a call for a higher degree of regulation, particularly with respect to licensing and inspection; and a need for management training.

Title: The Renovation Sector of the Canadian Home Building Industry: A Discussion Paper
Origin: Canadian Home Builders' Association
Publisher: Canadian Home Builders' Association, Ottawa
Year: 1988

Comments: This report provides a broad overview of the renovation sector of the Canadian housing industry. Questions are addressed which involve the historic and projected renovation demand trends; types of work undertaken; changes in market structure and homeowner demographics; relationship between housing science and new technology for renovation; training requirements; and organizational status of the sector.

This report covers many important points about the renovation business and provides a good coverage of the housing industry's point-of-view regarding this sector.

Title: The Demand From Residential Renovation for Selected Wood Based Building Products
Origin: Clayton Research Associates Limited
Publisher: Department of Regional Industrial Expansion, Ottawa
Year: 1986

Comments: This study examines the extent, characteristics and outlook for renovation in Canada, with particular emphasis on the demand from residential renovation work for several wood based building products. Included in the study are projections of residential renovation, and many of the conclusions are empirically based on a review of Statistics Canada data and the HOMES National Survey data. Among the conclusions are that the total residential renovation expenditures in Canada have exceeded expenditures on new residential construction from 1982 to 1985, and have more than doubled in the 1970 to 1985 period. Total annual renovation expenditures are projected to increase by 58 per cent from 1986 to 2001.

4.3 Impacts and Effects

In this category, the main areas of research concentration have been the following :

- general impacts of renovation on neighbourhoods
- benefits and costs of rehabilitation for households
- effects on house prices
- detrimental effects such as displacement of tenants
- impacts on the inner city

- improvement of senior citizen housing
- case studies dealing with social impacts of rehabilitation.

Comments on Selected Research Studies :

Title: Renovation Construction - Economic Impacts
Origin: Clayton Research Associates
Publisher: Ministry of Municipal Affairs and Housing, Ontario
Year: 1984

Comments: The objective of this study was to assess the relative impacts of renovation activity on employment and income versus total residential construction activity. The approach used in this study included an adaptation of U.S. input-output data to Canadian circumstances; interviews with contractors and architects; and a review of existing data.

This study concluded that residential renovation could have a greater "dollar-for-dollar" impact on employment than new construction. The greatest difference in employment is due to higher on-site labour requirements -- a relatively larger proportion of total employment from renovation occurs in the area which construction is located, as compared to new construction.

Title: The Economic Impact of the Canadian Homeownership Stimulation Plan and the Canada Home Renovation Plan
Origin: Oikawa, Dana
Publisher: CMHC
Year: 1986

Comments: The objective of this research was to evaluate the separate economic impacts of the CHOSP and the CHRP programs. The impacts examined were on employment, interest rates, and activity in the housing construction industry. The study involved the Conference Board of Canada's medium-term forecasting model, using CMHC data.

Results of this study suggested modest program impacts on employment and negligible adverse impacts on federal balance, interest rates, and public debt charges. In addition, in the medium term, there would be a deterioration in cost effectiveness of the programs in addressing their objectives.

Title: An Analysis of the Effect of the Residential Rehabilitation Assistance Plan on Housing Values -- Working Paper 988
Origin: Mark, Jonathan; Goldberg, Michael A.
Publisher: Faculty of Commerce & Business Administration, University of B.C.
Year: 1984

Comments: This study examined the extent to which spillover effects, either positive or negative, have been created in a Vancouver RRAP area.

The conclusion was that RRAP funded repairs add neither to the value of the unit receiving the repairs nor to other units which are nearby. These results are very local in nature and are not likely a reflection of broader program impacts.

Title: Improving the Elderly's Housing: A Key to Preserving the Nation's Housing Stock and Neighbourhoods
Origin: Struyk, Raymond J Soldo, Beth J.
Publisher: Ballinger Publishing Co., Cambridge, Massachusetts
Year: 1980

Comments: This study was aimed at examining the housing situation of the elderly and to make recommendations for improvement of government programs. Questions addressed related to demographic characteristics, types of housing arrangements, determinants of renovation and maintenance activities by owner-occupants, and the role of social services in maintaining housing quality.

This study concludes that substantial savings can be realized by providing the elderly with the services or capital to upgrade the housing units they own. In addition, this study concludes that housing stock conservation improves the economic and social conditions in deteriorating neighbourhoods, minimizing the need for other federal programs.

Title: Neighbourhood Upgrading: A Realistic Assessment
Origin: Varady, David P.
Publisher: State University of New York, Albany, N.Y.
Year: 1986

Comments: This is an evaluation of techniques of U.S. federal housing rehabilitation programs and the role they play in neighbourhood upgrading efforts.

This study addresses the important issue of identification of where it is feasible to intervene in the neighbourhood decline process.

4.4 Housing Conditions and Needs

In this category, the main areas of research concentration have been the following :

- review of data collection and requirements for policy and program design
- assessment of housing condition measurement techniques

- "one-time" surveys of housing conditions and needs
- consultation between government and housing sector representatives
- analysis of market potential for rehabilitation
- analysis of trends in the improvement or deterioration of housing quality
- special interest group renovation needs (e.g., for disabled persons)

Comments on Selected Research Studies :

Title: Neighbourhood Change: A Canadian Perspective
Origin: Mark, Jonathan H.; Goldberg, Michael A.
Publisher: CMHC/Real Estate Council of B.C.
Year: 1983

Comments: The intention of this study was to develop a model of neighbourhood change applicable to Canadian cities. Various features of U.S. derived models were examined and factors unique to Canada were isolated. The study concludes that the scale of government intervention directly relates to changes in property values -- for example, changes in single to multiple family zoning increases property value, as does RRAP area designation and increases in government program spending which facilitates homeownership.

Title: Improving Upon Survey Measures of Physical House Conditions
Origin: Ekos Research Associates
Publisher: CMHC-Program Evaluation Division, Ottawa
Year: 1987

Comments: This technical study examines the reliability and validity of various measures of physical housing conditions. Comparison of inspector and household respondent data are made and suggestions for improving the state-of-the-art in assessing housing conditions are made.

The conclusions of this study are based on the extensive experience gained during the National Housing Study sponsored by CMHC during 1985 and 1986.

Title: The Potential Market for Residential Renovation in Canada: A Pilot Study of Halifax
Origin: Scanada Consultants
Publisher: CMHC, Ottawa
Year: 1979

Comments: The purpose of this study was to estimate the saturation potential of and possible rates of activity within the process of renovation of existing residential stock. Questions related to time spent on renovation, materials used, volume of work, overheads, and rates of sustainable activity were examined. The method used in this study involved field observations and need and cost extrapolations based on Census data. Among the conclusions of the study were that a high level of renovation activity was sustainable for the next 30 years -- ultimate dollar potential for renovation in Halifax was some $750 to $930 million and in Canada some $200 to $230 billion, based on work needed and likely to be needed in the future.

Title: Final Report for the 1986 National Housing Study
Origin: Ekos Research Associates
Publisher: CMHC, Ottawa
Year: 1987

Comments: The intention of this study was to develop and implement a survey of the current and emerging market for rehabilitation among homeowners, tenants and landlords. The survey included homeowners, renters, and landlords of low-rise dwellings. Issues related to the state of repair of existing low rise housing in Canada are addressed by the study. The nature and extent of renovation activity in 1985 and the underlying determinants and constraints are examined. In addition, information on socio-economic characteristics of households is documented along with various characteristics of dwellings of publicly assisted renovators, non-assisted renovators, and non-renovators.

This project was intended to be a definitive study on the condition of housing and renovation needs in Canada. It is one of the most comprehensive, empirical assessments of housing at the national and provincial levels currently available.

4.5 Technology Research

In this category, the main areas of research concentration have been the following :

- renovation for energy conservation
- techniques and effects of insulation
- retrofit strategies
- diagnosis of house structure problems
- indoor air quality

- preserving historic buildings and materials
- conversion for multiple occupancy
- techniques for neighbourhood upgrading

Comments on Selected Research Studies :

Title: Rehabilitation Technology : A State-of-the-Art Review
Origin: Building Technology Inc.
Publisher: Building Technology Inc.
Year: 1987

Comments: This review presents and assesses the impact of innovations in rehabilitation technology. The use of diagnostic tools, computers, construction equipment methods and materials, and energy saving products and methods are examined.

One of the main conclusions is that despite technical improvements in equipment and methods, no significant breakthroughs have occurred in building condition assessments.

Title: The Weatherize Project
Origin: Moffat, R. Sebastian
Publisher: Ministry of Municipal Affairs and Housing, Ontario
Year: 1984

Comments: This was a two-year research demonstration project covering sixty-five houses in four communities comprising a cross-section of Ontario housing.

This project provides a demonstration of techniques for weatherizing houses. Problems related to air leakage and identifying appropriate techniques to use are examined.

Title: Building Rehabilitation Process Study
Origin: Randle Iredale Architects
Publisher: NRC -- Division of Building Research, London, U.K.
Year: 1981

Comments: The objective of this study was identify key differences in the design/build process between new construction and the rehabilitation of heritage and other older buildings.

This research examined renovators attitudes and priorities, physical constraints of renovation, and scheduling and sequencing of renovation activities. A number of significant differences between new construction and renovation were identified in this study.

V. REVIEW OF RESEARCH AND PRIORITIES

The empirical basis of this segment of the report is the information compiled from the numerous study documents reviewed, from the analysis of the database developed, and from the comments provided by knowledgeable persons. This segment therefore is a synthesis of results from the different lines of inquiry which were pursued for the review of renovation research.

The focus of this segment is on residential renovation research in Canada and therefore most of the points that are made apply to this country. However, the discussion also takes into account research carried out in other countries, mainly the United States -- particularly if this research addressed the same or similar questions as those dealt with in Canadian studies.

5.1 Residential Renovation Research is a Multi-Disciplinary Activity

The multi-dimensional aspect of residential renovation -- sociologic, economic, scientific -- means that the relevant issues need to be addressed by studies which use different disciplinary approaches. The results of such studies, however, are not always easy to integrate. Nonetheless, the advantage of achieving such an integration is a more comprehensive understanding of the problems, and consequently greater opportunity in discovering appropriate and effective solutions.

Thus any complete review of research on residential renovation inevitably must cover works that emanate from different disciplinary contexts. The literature search carried out for this study did not discriminate by selecting documents on the basis of approach. Instead, the search was guided mainly by the themes of research identified earlier in this report. Thus the documents reviewed represent a broad range of disciplines.

5.2 Role of Government

This area of research appears to be, over all, the most studied area of residential renovation. The particular focus on program evaluation and consultation initiated by the federal government over the past few years has contributed to a high level of interest in the role of government. Nonetheless, there are still specific areas of research within this category which have not sufficiently been investigated.

Alternative Financial Mechanisms

To begin with, the implications of alternative government mechanisms for financial assistance (such as tax incentives, vouchers, allowances for residential renovation, insured lending) have not been fully studied. Various alternative financial mechanisms to a certain extent have been identified, within the broader context of now completed policy and program studies -- but the effectiveness of these alternatives in comparison to existing mechanisms has not been appropriately determined. This is perhaps partly due to the

popularity of the government's Residential Rehabilitation Assistance Program. Much of the policy development, program evaluation, and consultation work which has been done over the past ten years has focused on this program -- four comprehensive RRAP evaluation studies have been carried out during the past decade.(1) In general, the verdict on RRAP has been pretty good -- consequently other renovation assistance options have mostly been studied in the shadow of this program.

The general direction of studies on the role of government have thus centred around the residential rehabilitation component of renovation. Other components such as addition, conversion, modification, alteration, improvement, and maintenance (all as defined in Appendix B) have not had the same degree of coverage and visibility -- yet each of these components make up significant parts of the renovation industry.

Regulations and Standards

It is generally postulated that regulatory codes and standards are a serious impediment to renovation.(2) House building codes have been written with new construction in mind, and apparently are often not appropriate in dealing with the situation where renovations are made to an existing residential structure. At least one provincial government, that of Ontario, has a working document on code provisions which specifically address renovation. Generally, however, this appears to be an area of research in residential renovation which has not been adequately investigated.

In this context, a comparative study of different cities with different regulatory environments may prove useful in determining the dimensions of this problem and how best to resolve it.

Some of the related issues, which have been identified in the course of this review and which have not been sufficiently covered in the literature, involve the following:

- consumer protection
- licensing requirements
- warranty programs
- enforcement of standards
- maintenance and occupancy by-laws
- inspections practices
- streamlining of approval processes for renovation work
- specific impacts of regulations and standards on landlords and on their inclination to renovate.

Each of the above represents differing degrees of interest depending on the particular level of government involved. At the municipal level, maintenance and occupancy by-laws, inspections practices, streamlining of approval processes and licensing requirements are higher priority issues to deal with. Consumer protection and enforcement of standards are federal level priorities. At the provincial level,

---

(1) The most recent of these evaluations is Residential Renovation Assistance Program Evaluation, Program Evaluation Division, CMHC, Ottawa, March 1986.

(2) See Facilitating Production of Affordable Housing Through Regulatory Reform and Streamlining Approval Processes, a CMHC discussion paper prepared for the National Conference of the Canadian Association of Housing and Renewal Officials, May 1986, Toronto.

licensing requirements, warranty programs, and impacts of regulations and standards on landlords are important concerns. Although these distinctions are made here, it should be noted that all these issues are related to each other and there is obviously a general interest by all levels of government in all the issues.

In general, regulatory practices and applications of standards for renovation activities are considered weak across Canada -- only Ontario has a separate document on how building codes apply to renovations in that province.(1) While industry-run new home warranty programs are available in all provinces, only Quebec has a renovation warranty -- as a voluntary program.

Thus there appears to be a need for more research in determining the requirements for and the impacts of regulations and standards on residential renovation activities.

Provincial and Municipal Programs

While the effectiveness of national rehabilitation programs have for the most part been extensively studied, actual or potential provincial government and municipal incentives for renovation have not similary been investigate. The last time a comprehensive effort was carried out, with a series of local studies on renovation and related activities, was in the context of the Neighbourhood Improvement Program of the 1970s, shortly after which the program became defunct. There are, however, in the literature reviewed, many disparate case studies and segments of demonstration projects which address renovation issues. For the most part, while this local research has increased awareness of renovation issues, they have not yet led to significant new local program initiatives.

Legislation

Renovation is a larger issue than rehabilitation *per se* -- yet most of the legislation, at the federal and provincial levels, is centred around rehabilitation and assistance to those most in need in terms of income parameters. However, the renovation of the housing stock is an investment in Canada's future -- generally, the more the housing stock deteriorates, and the less appropriate the housing stock is to the needs of consumers, the more likely it is that future generations will be paying higher tax dollars on the renovation of shelter in this country. The legislative implications of alternative government incentives which encourage and assist consumers to renovate, need to be examined.

While legislation which explicitly affects renovation activities (apart from rehabilitation) is scant, the indirect impacts of other federal and provincial legislation is not fully understood or documented in the literature.(2) A

---

(1) However, at the federal level there is work underway by the Associate Committee for the National Building Code to develop a guide on essential NBC requirements for renovation.

(2) The only reference identified in the literature which centres on legislation and how it affects renovation of dwellings is Government Involvement in Residential Renovation: The Legal Basis, by Marc Denhez, a paper prepared for Canada Mortgage and Housing Corporation, Ottawa, March 1986.

compendium of legislation such as that covering property taxes, rent controls, zoning, development approvals, capital gains taxes, capital cost allowances, trades regulations, consumer protection, etc., and how these impact on residential renovation activities, would be a good start in this direction.

Regional Differences

Housing is not a geographically homogeneous commodity. In the existing literature there is ample documented evidence about differences between the regions of Canada -- particularly in terms of types of structures, repair needs, financial requirements, consumer choices, industry structures and practices, and so on. However, there is no single reference which deals with the issues of regional differences *per se*. A comprehensive "stock-taking" study which compiles existing information about regional differences would help focus efforts at addressing related questions on the role of government in dealing with these differences.

Program Delivery

This is an area which appears to have been adequately covered within the context of the program evaluations which have been carried out over the past decade. Program auditing and performance monitoring are also continuous activities which deal with program delivery issues and are considered as government management functions rather than as research activities.

Monitoring of Renovation Activities

Monitoring of housing related trends and issues is generally considered a legitimate activity of government. Though this is true from a policy and program development perspective, it is also of interest to the private sector to have adequate monitoring capabilities in place which address the housing industry's needs.

The existing monitoring mechanisms in place are not primarily focused on the renovation market and industry, but on housing in general. The feasibility of monitoring the residential renovation sector should be studied -- to determine how best, on an ongoing basis, to keep the actors in the renovation sector well informed about developments and activities in all facets of residential renovation in Canada.

This could well be in the form of some detailed newsletter financed by the federal government and prepared by a private organization or firm, which would provide a monthly update on residential renovation developments -- such as information about renovation expenditures, new government and industry initiatives, renovation studies underway or completed, new products and services, research on relevant technology, the latest statistics on activities, etc. This would not be a "one-time-effort" enterprise, but an ongoing commitment by the parties concerned -- perhaps designed as a one-year trial to be renewed if successful. The computerized database on residential renovation research established for this study could be part of this initiative -- i.e., maintenance and regular updating of this database could effectively serve the monitoring process.

5.3 Industry and Market Studies

Industry Structure and Operations

The Canadian renovation industry is comprised of thousands of small and medium-sized companies, and perhaps only a handful of large companies. According to the CMHC National Housing Study -- 1985 (which included the National Residential Renovation Industry Survey), small firms in the renovation industry average about six full-time employees. Except in major urban centres most of these renovation contractors are unspecialized and in addition to renovation work undertake commercial and new house building activities.

During the past five years or so there have been some studies carried out to better understand the structure and operations of the industry. These studies include studies on the industry in Nova Scotia,(1) Alberta(2), and Toronto.(3) While these studies have shed considerable light on the workings of the renovation industry and markets in some parts of the country, clearly additional research is needed to learn more about the sector in other parts.

A major area of research activity which needs to be continued in this direction is the collection of statistics on firms, including their number, size, turnover rate in the business, type of work carried out, degree of specialization, business volumes, profitability, and growth potential. The rationale for compiling this type of information is to provide the necessary knowledge base which would result in more informed public policy, and to assist industry in increasing its effectiveness in planning as well as in day-to-day operations.

Generally, what is currently known is that the renovation sector is fragmented and has no solid "identity" within the housing industry.(4) Entry into and exit from the sector can be rapid, and unknown numbers of companies enter and leave the renovation field each year. Most are small and the majority are not members of any association. They are mostly locally-based and have not, as yet, established an organizational framework to adress the needs and concerns of their segment of the housing sector.

---

(1) Nova Scotia Residential Renovation Industry Study: Final Report, prepared for Canada Mortgage and Housing Corporation by The DPA Group Ltd., December 1987.

(2) Review of Alberta's Home Renovation Industry, prepared for Alberta Municipal Affairs by Reginald R. Copithorne, Colony Park Enterprises Ltd., Edmonton, December 1984.

(3) The Toronto Renovators: The Structure of the Industry and the Operation of its Firms, prepared for Canada Mortgage and Housing Corporation by Donald M. Caskie, 1983.

(4) The Renovation Sector of the Canadian Homebuilding Industry: A Discussion Paper, prepared by the Canadian Home Builders' Association, Ottawa, January 1988.

Financing Practices

Another aspect of the renovation industry in which very little work has been done over the past decade concerns financing practices.(1) Relevant questions which need to be addressed in this context are as follows:

- How is renovation financed by consumers?
- What is the lenders point-of-view regarding financing of renovation?
- What programs should be introduced to facilitate better lending practices and easier access to funds?
- Are there any significant differences between different urban and rural centres across Canada?
- Do some areas have more difficulty in obtaining financing for renovation, and if so are these areas, as suspected, more likely to need it?

Business Practices

Generally the industry is still for the most part informally organized -- i.e., there does not exist any formal organization which oversees the business of residential renovation as practiced by firms and individuals. There are few formalized, operating standards and few qualifications that must be met before renovators can start operating in the business. The exception is in Quebec where all contractors must be licensed. In addition, some metropolitan areas also have enacted by-laws which require some contractors to be licensed -- but the effectiveness and scope of these requirements vary considerably from-area to-area.

The industry is very fragmented in terms of who does the renovation work. Various studies have estimated that the "do-it-yourselfers" comprise 40 to 80 per cent of renovation work carried out -- the higher point of the range usually cited in the context of more rural and remote areas and the lower point being more pertinent in the larger urban centres. It is thus difficult to contemplate residential renovation as an industry which can ever be organized and regulated in a manner as is the new construction sector.

While the do-it-yourselfers comprise a significant proportion of the business, there are thousands of firms who enter the industry on a full-time basis, committed to establishing themselves as legitimate enterprises. Renovation contractors usually enter the business from one of two different backgrounds. The first consists of tradespeople who have worked under someone else and who have decided to go into business for themselves. Their working experience may provide them with a solid grasp of the technical requirements of renovation projects, but they are frequently lacking in managerial and business skills. The other group are new home builders who take on renovation projects in order to balance their project loading and increase their overall level of activity. These general contractors have a broader professional and administrative background and possess better administrative capabilities, but still need to

---

(1) The most prominent of the work that has been carried out is the "Survey of Lenders on Financing of Home Improvements", carried out for CMHC by Clayton Research Associates Ltd., March 1985.

benefit from a better understanding of building technology as it applies to the renovation process.(1)

Determining the feasibility and mechanisms of streamlining the industry by establishing a formal renovation network -- e.g., by encouraging the foundation of local renovation councils and(or) provincial renovation associations -- is an area of research interest. The likely effectiveness of such a network and its role in improving better business practices should be assessed.

Dynamics of Supply and Demand

The economic dynamics underlying the balance of supply of housing with demand have been studied mostly in the context of new construction. The role of conversions, additions, and other renovation activity, in achieving market balance has not been sufficiently investigated. Relevant questions in this area of research are:

- Can we make better use of the existing housing stock through conversions -- to achieve a better match with consumer needs?
- How effective is the renovation sector in responding to increased demand for housing -- or does this sector not play a prominent role in this context?
- Has there been too much emphasis on the homeowner renovation segment of the market? Conversely, should there be more emphasis on rental renovations?

Role of Third Sector

Here it appears, from the literature reviewed, that much of the contribution of the third sector in residential renovation has been in the context of government housing programs. There is a potential role in terms of non-profit self-help organizations, particularly in the context of elderly housing and assistance -- for example, in terms of providing advice and guidance on the course of action regarding renovations of homes for the elderly.

Generally, however, there is a need for a study to identify the involvement of the non-profit sector in renovation. The key question addressed here would be: what are its actual and potential contributions and what is its role?

---

(1) The Renovation Sector of the Canadian Homebuilding Industry: A Discussion Paper, *op. cit.*

Rural Areas

Very little research has been done in Canada on renovation activity in rural areas, yet rural areas have the highest incidence of housing units in need of major repairs (14 per cent as opposed to 8 per cent in urban areas), and comprise 44 per cent of the total dwellings requiring major repairs.(1) House builders and renovators in these areas often lack the skills of their urban counterparts and homeowners more often carry out the work themselves or hire semi-skilled tradespeople. Other research issues related to residential renovation in rural areas are as follows:

- Is financing of renovation more difficult in rural areas than in urban areas? Is there less lender activity and more personal financing of renovation in rural areas?
- Are rural renovation site conditions more difficult to deal with?
- Is the existing regulatory framework inappropriate in rural situations? Is it designed primarily for the urban context?
- To what extent are building standards enforced in rural areas as compared to urban areas?
- Is the rate of deterioration of the rural housing stock faster than the urban stock -- as a result, perhaps, of poorer quality construction and renovation practices?
- Are building and repair costs higher in rural areas?
- To what extent do spatial and life-style housing needs differ in rural areas?
- What emphasis is placed on dwelling maintenance by rural area families?

Clearly there is a need to document the differences in urban and rural dimensions of residential renovation. Much of the current conjectures about differences are more speculative than being based on empirical evidence. If the improvement of the quality and appropriateness of rural housing is to be achieved a better understanding of renovation problems in rural areas is required.(2)

---

(1) See Charts 3 and 4.

(2) There is now at least one study which is underway dealing with rural issues : the Atlantic Canada Residential Renovation Study, being carried out by the Rural and Small Town Research and Studies Programme, Mount Allison Univeristy. The focus of this study is threefold: (i) to develop an understanding of the role and benefits of the self-help approach as it relates to residential renovations; (ii) to examine the need for, and impact of, local regulations for residential renovation activities; and (iii) to examine the extent to which new technologies are incorporated into renovation work and the methods of transferring information on new technology to the contractor or homeowner involved in residential renovation.

5.4 Impacts and Effects

Economic Impacts and Effects

With almost $16 billion annual expenditures the renovation industry has a considerable impact on the Canadian economy. Renovations account for over 40 per cent of total expenditures on residential construction and represent about 2.6 per cent of Canada's Gross Domestic Product. Given this impressive contribution, understanding the economic spinoffs of this rather informally structured segment of Canadian industry is necessary if public and private initiatives to improve shelter conditions of Canadians are to be successful.

Among the spinoffs that have been discussed in the literature over the years since the 1970s are the following:

- employment generation -- since renovation is generally considered to be a labour intensive business;
- increase of property values -- this occurs when renovation results in extension of dwelling longevity, or when living space is added, or when safety and health conditions are improved, and so on;
- neighbourhood effects -- this refers to the positive effects of renovation of a dwelling or group of dwellings on value and appearance of a neighbourhood;
- displacement -- this refers to the displacement of households, particularly of tenants of renovated rental buildings.

The literature is plentiful with references related to each of these spinoffs of residential renovation. Much of this work, however, is dated, largely referring to 1970s and early 1980s situations. These spinoffs need to be revisited from within the current context. For example, employment generation could well be less significant than is generally understood. Newer technological processes and equipment may mean that the labour intensity of renovation is not as great as might have been expected ten years ago. Moreover, within the context of the broader definition of renovation, additions and conversions may not generate much more labour intensity than new construction. These postulations, however, would need to be researched. The significance of properly identifying the spinoffs of renovation is that this would result in improved capabilities on the part of the public sector in devising relevant policies and programs, and better planning and management on the part of the private sector.

Costs and Benefits of Renovation

The idea that there is a point in the life of a dwelling beyond which it becomes more economical to build a new dwelling rather than to renovate the old has been studied extensively during the 1960s and 1970s, in the context of the urban renewal and redevelopment programs and policies of those times. Much

of this work, focussing on the analysis of costs and benefits of rehabilitation, has been carried out in the United States.(1)

With the improvements in technology and building processes, it may well be that this issue will be revived within the current context. Whether the costs of renovation have escalated to the point where in certain instances it has become more feasible to build rather than to renovate is a question which needs to be addressed -- particularly since new technology and building processes have improved to a point where it may be more efficient to level and rebuild.

In a program context, apparently there are some dwellings which were rehabilitated during the 1970s under the RRAP program which are now again eligible for RRAP loans as a result of deterioration. Thus the old question as to whether it is more efficient to rehabilitate or to build new dwellings becomes a topic of interest.

Determinants of Renovation

Some indications of why people renovate their homes was provided by the CMHC National Housing Study. The top scoring reasons for renovation in the NHS study were "to look better inside" (70 per cent of homeowners surveyed), "to look better outside" (65 per cent), "to reduce heating costs" (56 per cent), "to increase resale value" (51 per cent), and "to reduce maintenance costs" (50 per cent).(2)

While some of the questions regarding consumer determinants of renovation have been addressed by the NHS, there are other aspects to the decision to renovate involving income and lifestyle factors which still need to be addressed. In addition, renovation is not a homogeneous activity, therefore incentives to renovate should be examined separately in the context of each of the components of renovation -- i.e., addition, conversion, modification, alteration, rehabilitation, improvement, and maintenance (all as defined in Appendix B). This is not a semantic argument since each one of these terms clearly refers to distinct facets of renovation.

Impediments

The other side of the determinants picture are the impediments, or why people do not renovate -- for example, because of old age, low income, perception of condition of dwelling, zoning restrictions, property taxation, financing restrictions, land uses, etc.

Both the incentives and constraints on renovation activity should become a topic of research interest in the coming years. The insights which could be gained by a better understanding of these factors will serve to improve the process of policy and program development.

---

(1) One of the more recent studies in this context is New Construction Vs. Rehabilitation: the Tradeoff in Meeting America's Housing Needs, by Jerome Rothenberg, Institute of Business and Economic Research, University of California, Berkeley, 1985.

(2) Overview, *op. cit.*

What is Renovated?

The various research on renovation over the past decade has for the most part rarely provided or sought separate statistics on the different components of renovation. In order to contribute to the process of public and private sector decision making about the residential renovation industry, more data and analysis should be sought and tailored around the distinct components of renovation -- addition, conversion, modification, alteration, rehabilitation, improvement, and maintenance.

Consumer Education

From the review process carried out for this study, there appears to be a consensus on the need for more consumer education to inform potential renovators about the benefits of renovation, about the key factors involved in the decision to renovate, about the process of renovation, etc. If access to information about renovation is the problem then consumer education is seen as part of the solution. Research on how this should be conducted, what areas it should focus on, who takes responsibility for it, and so on, is necessary. One model which is set up as an example for government action on consumer education, is the initiative being carried out by the Ontario provincial government. Ontario's thrust to support renovation involves a consumer awareness program which includes videos, brochures, an awards program, and a demonstration centre for renovation techniques.

Implications of Self-Help

Most studies which have recognized self-help as an important factor in residential renovation have stopped at the point of simply estimating what the size of the self-help segment of the industry is. Estimates range from 40 per cent to 80 per cent depending on the region being considered. In light of the estimated size of this factor, some research could be devoted to better understand its role and implications. Key research areas of interest in this context include the following:

- advantages and disadvantages of self-help;
- impact of self-help on the quality of work done;
- urban-rural differences in self-help activities;
- socio-economic characteristics of self-helpers;
- type of work done using self-help;
- training requirements to assist self-helpers.

5.5 Housing Conditions and Needs

Data Collection

There is a strong consensus among experts on the need for more appropriate information on residential renovation in Canada. While much progress has been made during the past decade in determining data requirements and methods of gathering these data, there remains a fundamental deficiency in terms of accurately segmenting renovation activities into their actual components. Much of the existing data, with some exceptions, have been gathered with an underlying conceptual basis centred around rehabilitation and government program development requirements. As was discussed in earlier sections of this report, renovation is far more comprehensive in its scope and contribution to the shelter requirements of Canadians. Residential renovation is a multi-dimensional phenomenon and the efforts at data collection should begin from this basic premise -- i.e., tailoring data assemblage around a more rigorous interpretation of the activities which result in renovation of dwellings, namely with the view that renovation is addition, conversion, modification, alteration, rehabilitation, improvement, and maintenance.

The existing, primary Canadian sources which contain information on residential renovation, and which are often used in related research, include the following:

- various Censuses of Canada;
- the National Housing Study, CMHC;
- the Family Expenditures Survey, Statistics Canada;
- the Labour Force Survey, Statistics Canada;
- the Household, Facilities, and Equipment Survey, Statistics Canada;
- the Shelter Cost Survey, Statistics Canada;
- the Homes National Survey, Environics Research Group Ltd.;
- the Residential Renovation Industry Survey, CMHC;
- the Survey of Lenders on Financing of Home Improvements, CMHC;
- other surveys of a "one-time" nature carried out for various provincial, municipal, and federal organizations.

These sources are disparate with different objectives and scope. It would seem that there is a need for greater coordination of data collection efforts, with a view to standardizing interpretations and clarification of information requirements of all actors involved with residential renovation.

Another dimension of the data gathering function is the targeting of groups that are sources of information for renovation activities -- i.e., homeowners, landlords, contractors, building supply dealers, building inspectors, and financial institutions. The feasibility, requirements and implications of gathering data from each of these sources -- in a fashion which provides intelligence in regular intervals, for tracking and monitoring purposes -- should be the starting point from which improvements to the overall knowledge base on residential renovation can be assessed.

Measuring Housing Conditions

The state-of-the-art regarding the measurement of housing conditions has developed considerably during the past decade. However, the "one-time-survey" nature of the work continues to be a problem. Detailed information which is representative of local conditions is needed, beyond the national or provincial levels. The body of data and data sources on residential renovation activities do not provide an adequate basis for understanding local conditions.

Analysis of Trends and Prospects

This generally is an ongoing research activity which feeds into a number of other areas of research. The analysis of trends and prospects provides the basic background information needed both for the public and private sectors to remain up-to-date about relevant events and statistics.

In this context, the review process for this study has determined that research work in this area should aim towards providing more analysis that is localized in nature -- to assist local government officials and industry representatives to better understand their respective markets and related trends, and how these may or may not differ from the national picture.

Needs of the Elderly

Many of the Canadian houses which require renovation are occupied by elderly persons. The requirements of the elderly in terms of maintenance, incentive to renovate, and other housing options for the future, including conversions and modifications, should be further studied -- particularly given the now well documented evidence about the aging Canadian population.

5.6 Technology Research

Technology Development -- Who Does What?

Canada Mortgage and Housing Corporation has provided leadership in the investigation and the development of solutions to technical housing problems. However, CMHC is not alone in housing technology research. An increasing amount of research is being sponsored, and information and training is being provided, by other agencies in both the public and private sectors. Some of these organizations are as follows:

- Canadian Home Builders' Association
- l'Association provinciale des constructeurs d'habitation du Québec
- various other industry and trade associations
- Energy, Mines and Resources Canada
- Canadian Standards Association
- provincial energy and housing ministries
- Institute of Research in Construction (IRC) at the National Research Council (NRC).

The degree to which these various organizations are involved in assisting the development and application of technology in the residential renovation industry is not fully or adequately documented in any single source. Identification of the major technological studies sponsored or carried out by these organizations needs to be documented in order to better serve the process of technology transfer to the renovation industry. Towards this goal a compendium of research which documents who is doing what, and how this research has a bearing on residential renovation, would be beneficial.

Technology Transfer

Currently there is research underway sponsored by CMHC which is aimed at understanding and defining the various aspects of technology transfer in the housing sector. While much research dealing with technology transfer and diffusion of knowledge has been done over the past decade in other sectors of the economy, very little has been done which relates to the housing sector. Clearly, housing is a technology intensive industry which is considerably influenced by new developments and inventions in numerous constituents.

However, the effective utilization of innovative technology depends on awareness and the rate at which the industry can absorb new products and processes. Needed initiatives in this context include the following:

- identification of new products with potential for use in residential renovation and establishing marketing mechanisms and techniques for these products;

- examination of the extent to which new technologies are incorporated into renovation work and the methods of transferring information on new technology to the contractor or homeowner involved in residential renovation;

- encouragement of industry input into government research and technology transfer -- the industry should play an active role in identifying research needs, at both the federal and provincial levels.

Processes and Applications

There is a need to document the differences in the processes and practices involved in new construction and those concerning renovation. Points of interest here are the differences in building processes concerning areas such as scheduling, installation, labour management, appropriate skills, costing, and marketing.

Evaluation

More research is needed in terms of how to evaluate a dwelling's conditions and its renovation requirements. Much work in this area has been carried out in the context of energy efficiency and "payback" dimensions of upgrading energy components. Over the past decade, there has not been a similar thrust of research activity in terms of paybacks to other renovation facets.

Other dimensions of technology evaluation which are of continuing interest include:

- materials evaluation and testing,
- inspection processes for new products,
- installation guidelines and practices,
- life-cycle costing,
- applicability of new technologies to different environmental conditions and dwelling structures.

Finally, another area of evaluation research which has been very inadequately covered in the past involves the techniques employed in measuring the rate of deterioration of dwellings and dwelling components. This issue is important to investigate particularly in the context of the extent of rehabilitation to do and whether it is more efficient to rebuild or to rehabilitate. Attention could be devoted to improving methods for determining the extent of deterioration due to environmental influences such as corrosion, chemical attack, insect and fungus damage, and rot. Also some consideration could be focused around developing guidelines for determining the remaining useful life of materials and dwelling components.

5.7 Other Research Areas

Training

There have been several training initiatives carried out over the past decade -- particularly during the past two to three years. In this area, feedback on these training initiatives and the effect they have had is needed. For example, the experiences of the renovators' workshops sponsored by CMHC and the Canadian Home Builders Association could be reviewed. Recommendations could then be

made on what the training requirements are for the future, who should receive the training, what are the most effective mechanisms for training -- e.g, workshops, seminars, college and trade school courses, participation in trade shows, etc.

Information Dissemination and Coordination

There appears to be a consensus among knowledgeable individuals interviewed for this study that more information on residential renovation markets is needed. The process of acquisition and dissemination of this information, however, needs to be examined. Some of the questions that need to be answered are:

- What information is needed?
- Who are the target groups for this information and what are each group's requirements?
- What are the best mechanisms for the dissemination of the relevant information?
- Who should coordinate the process of compiling and disseminating the information?
- Should there be a focal point -- a centre for information on research on renovation?

Greater use of existing computer software and technology is suggested as an aid in compilation and dissemination of information. For example, several annotated bibliographies have been developed during the past decade, but these quickly gather dust if not updated. Selected information on research results, renovation activities, new products and processes, methods of construction, catalogues and other reference documents, etc., could well be kept up to date through computerized databases similar to that developed for this study.

Another basic study which is needed, and is related to information requirements, is the development of a basic lexicon of renovation terms -- with the objective of becoming a standard on Canadian usage in this area. Several studies on different aspects of renovation have provided definitions of terms -- but these definitions invariably have subtle, and sometimes not-so-subtle, differences in interpretation. To improve the understanding of the components of renovation and to increase the rapport between the different disciplines involved in research on renovation, there clearly is a need for agreement on the interpretation of terminology.

APPENDIX A

LIST OF PERSONS CONSULTED

LIST OF PERSONS CONSULTED FOR THIS STUDY

Angus, Jamie	--	Canada Mortgage and Housing Corporation, Ottawa
Barnett, Claudia	--	New Brunswick Housing Corporation, Fredericton
Beaudoin, Jim	--	National Research Council Canada, Ottawa
Carter, Tom	--	Institute of Urban Studies, Winnipeg
Cates, Farley	--	Manitoba Housing, Winnipeg
Champion, Harry	--	Statistics Canada, Ottawa
Couillard, Robert	--	Statistics Canada, Ottawa
Corbett, Ron	--	Mount Allison University, Sackville
Corke, Sue	--	formerly with the Ontario Ministry of Housing, Toronto
Goldthorpe, Peter	--	Environics Research Group Limited, Toronto
Gray, Brian	--	Canada Mortgage and Housing Corporation, Ottawa
Graves, Frank	--	Ekos Research Associates, Ottawa
Dowler, Robert	--	Ontario Ministry of Housing, Toronto
Finley, Lorne	--	Canada Mortgage and Housing Corporation, Ottawa
Fuller, Paddy	--	Canada Mortgage and Housing Corporation, Ottawa
Holmen, Linden	--	Alberta Municipal Affairs - Housing, Edmonton
Hustwit, Peter	--	Canada Mortgage and Housing Corporation, Ottawa
Jones, Leslie	--	Canadian Housing Information Centre, CMHC, Ottawa
Leong, Jeanne	--	Canada Mortgage and Housing Corporation, Ottawa
MacEwan, Brian	--	Canadian Standards Association, Rexdale
Melnyk, John	--	Department of Regional Industrial Expansion, Ottawa
Moisan, Hugues	--	l'Association provinciale des constructeurs d'habitation du Québec, Montréal
Murray, Graham	--	Canada Mortgage and Housing Corporation, Ottawa
Noseworthy, Bob	--	Newfoundland and Labrador Housing Corporation, St. John's
Scott, Dave	--	Institute for Research in Construction, NRC, Ottawa
Skaburskis, Andrej	--	Queen's University, Kingston
Stocking, Rudy	--	Ontario Ministry of Housing, Toronto
Terry, Chris	--	Canada Mortgage and Housing Corporation, Ottawa

In addition, the following persons participated in consultation discussions on this study at the National Housing Research Committee's meeting on Renovation -- November 4, 1988 (some of the persons already mentioned above were also present at this meeting).

Bushell, Dick	--	Northwest Territories Housing Corporation
Larmour, Peter	--	British Columbia Housing Management Commission
Lenk, Anna	--	Canadian Housing and Renewal Association
McLaughlin, Mary	--	Canadian Council on Social Development
Porter, William	--	Canadian Standards Association
Shah, Zain	--	Construction Control Group
Sloat, Bob	--	Canadian Home Builders' Association
Smith, Catherine	--	Newfoundland and Labrador Housing Corporation
Stewart, Doug	--	Canada Mortgage and Housing Corporation, Ottawa
Tom, Shirley	--	Federation of Canadian Municipalities
Trudel, Jacques	--	Société d'habitation du Québec
Wellman, Tony	--	Canada Mortgage and Housing Corporation, Ottawa

APPENDIX B

DEFINITIONS OF KEY TERMS

The following are definitions of key terms as used in this study.

ALTERATION: Work which changes a dwelling to meet special needs of its occupants (e.g., barrier-free access for the physically disabled).

ADDITION: Construction which increases the living space of a dwelling (e.g., addition of a 'family room').

CONVERSION: Work which changes the number of self-contained units in a dwelling or which changes a building from non-residential to residential use.

IMPROVEMENT: Activity which improves the physical state of a property beyond its original condition and which increases its value, utility, appearance etc.

MAINTENANCE: Regular activity which sustains the structure's current physical condition (e.g., painting, furnace cleaning).

MODIFICATION: Work which reorganizes the living space of a dwelling for different or additional functions such as sleeping, dining, recreation, etc.

REHABILITATION: Activity which returns a deteriorated property to good condition, to achieve at least equal quality with other well maintained older properties, as well as to increase the useful life of the property.

RENOVATION: A set of activities performed on an existing residential structure which does any of the following:

- sustain the structure's current physical condition by regular maintenance;
- increase its soundness and safety by replacing or fixing components;
- improve its physical state beyond its original condition;
- modify it to increase or reorganize its living space;
- alter it to meet special needs of its occupants (e.g., barrier-free access for the physically disabled); or
- convert it to change its number of self-contained units.

REPAIR: Activity which increases the soundness and safety of a dwelling by replacing or fixing components.

Major Repair: Activity such as fixing or replacing defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings, etc. (1981 Census of Canada definition).

Minor Repair: Activity such as fixing or replacing missing or loose floor tiles, bricks or shingles, defective steps, railing or siding, etc. (1981 Census of Canada definition).

RESTORATION: Work which returns a building as nearly as possible to its original or normal form and condition by repairing or remodeling -- usually refers to preservation of historical properties.

APPENDIX C

DATA COLLECTION INSTRUMENT

(1) SOURCE OF LISTING:_____ (2) SOURCE REFERENCE #:_____

(3) TITLE:

_____

(4) NAME(S) OF PRINCIPAL RESEARCHER(S): A. _____

B. _____ C. _____

(5) STATUS: completed [ ] underway [ ] (6) GEOGRAPHIC SCOPE:_____

(7) PUBLISHER:_____ (8) NUMBER OF PAGES_____

(9) DATE OF PUBLICATION:_____ (10) FORMAT OF THE REPORT:_____

(11) SPONSOR:_____ (12) LANGUAGE(S):_____

(13) CONTACT PERSON: (name)_____ (organization)_____

(address)_____ (phone)_____

(14) OBJECTIVE(S):

_____

(15) QUESTIONS/ISSUES:

_____

(16) METHOD:

_____

(17) SUMMARY OF RESULTS:

CLASSIFICATION

(18) CATEGORY:_____ (19) DATABASE REFERENCE #:_____

(20) KEYWORDS:

NOTES:

APPENDIX D

SAMPLE DATABASE RECORD

SAMPLE RECORD

SOURCE LIST	---:	CHIC
SOURCE REFERENCE	---:	Cal MH 87C56
TITLE	---:	A Consultation Paper on Housing Renovation
RESEARCHER-1	---:	CMHC
RESEARCHER-2	---:	
RESEARCHER-3	---:	
STATUS	---:	Complete
GEOGRAPHIC SCOPE	---:	Canada
PUBLISHER	---:	CMHC, Ottawa
PAGES	---:	40
YEAR PUBLISHED	---:	1987
FORMAT	---:	Monograph
LANGUAGES	---:	English/French
SUMMARY	---:	Objective of the report was to serve as a basis for discussions with individuals, and with producer and consumer interest groups regarding the role that government should play in private renovation markets and on the extent to which the RRAP program can be improved. Includes overview of renovation market, discussion of issues to address, and program summary information.
CATEGORY	---:	A1 Policy & Program Development [Role of Government]
REFERENCE NUMBER	---:	218
KEYWORD 1	---:	CONSULTATION
KEYWORD 2	---:	POLICIES
KEYWORD 3	---:	PROGRAMS
KEYWORD 4	---:	OVERVIEW
KEYWORD 5	---:	ISSUES
KEYWORD 6	---:	

APPENDIX E

CURRENT LIST OF TITLES

This appendix provides a complete list of the current titles in the research database. Only selected fields from the database are listed for each title -- i.e., category, title, origin, publisher, and year of publication. Classification of titles is based on the following categories:

CATEGORIES

A. ROLE OF GOVERNMENT (131 titles)

- A1 Policy and Program Development
- A2 Organization and Management
- A3 Finance
- A4 Regulations and Standards
- A5 Legislation
- A6 Evaluation
- A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)

B. INDUSTRY AND MARKET STUDIES (60 titles)

- B1 Structure and Operations
- B2 Finance
- B3 Supply and Demand
- B4 Analysis of Trends, Prospects, Determinants, etc.
- B5 Other (Processes, Entrepreneurship, etc.)

C. IMPACTS AND EFFECTS (62 titles)

- C1 Economic Impacts and Effects
- C2 Social Impacts and Effects
- C3 General Consequences and Case Studies

D. HOUSING CONDITIONS AND NEEDS (53 titles)

- D1 Data Collection
- D2 Measurement, Methodologies
- D3 Analysis of Trends and Prospects
- D4 Other (Special Needs, Local Studies, etc.)

E. TECHNOLOGY (44 titles)

- E1 Technology Development
- E2 Processes and Applications
- E3 Evaluation

F. OTHER TITLES (53 titles)

- F1 Bibliographies
- F2 Guides
- F3 Conferences, Seminars, etc. (Proceedings)
- F4 International Studies
- F5 Training Packages
- F6 Research Designs and Needs
- F7 Catalogues, Inventories, Terminology

A. ROLE OF GOVERNMENT

1 Category: A1 Policy and Program Development
Title: Revitalizing North America's Neighbourhoods: A Comparison of Canadian & U.S. Programs for Neighbourhood Preservation & Housing Rehab
Origin: Carlson, David The Urban Institute, Washington, D.C.
Publisher: CMHC (Ottawa) & HUD (Washington, D.C.)
Year: 1978

2 Category: A1 Policy and Program Development
Title: Federal Policy Toward Property Tax Exemptions and Abatement for Housing Rehabilitation
Origin: Hovey, Harold A. Mick, Susan
Publisher: Urban Institute/HUD, Washington D.C.
Year: 1980

3 Category: A1 Policy and Program Development
Title: Government Assistance and the Rehabilitation of the Existing Housing Stock: Rationale and Conceptual Framework
Origin: Goldberg, Michael A.
Publisher: CMHC
Year: 1980

4 Category: A1 Policy and Program Development
Title: Housing Rehabilitation Programs in Ontario - AMO Reports 24
Origin: Association of Municipalities of Ontario
Publisher: The Association of Municipalities of Ontario
Year: 1980

5 Category: A1 Policy and Program Development
Title: Housing Rehabilitation in Canada: A Review of Policy Goals and Program Design (Major Report No. 16)
Origin: Willson, Katherine
Publisher: Centre for Urban & Community Studies, Univ. of Toronto
Year: 1980

6 Category: A1 Policy and Program Development
Title: The Role of Ontario Municipalities in Property Maintenance and Rehabilitation
Origin: Ont.Assoc.of Property Standards Officers
Publisher: Ontario Association of Property Standards Officers
Year: 1980

7 Category: A1 Policy and Program Development
Title: Good Housekeeping: An Examination of Housing Repair and Improvement Policy
Origin: SHAC
Publisher: SHAC, London
Year: 1981

8 Category: A1 Policy and Program Development
Title: Housing Improvement Policy in England and Wales: A History and Comparative Review
Origin: Willson, Katherine
Publisher: Centre for Urban & Community Studies, Univ. of Toronto
Year: 1981

9 Category: A1 Policy and Program Development
Title: Report on the Residential Rehabilitation Assistance Program
Origin: Joint Task Force on RRAP
Publisher: CMHC/Canadian Assoc. of Housing & Renewal Officials
Year: 1981

10 Category: A1 Policy and Program Development
Title: Housing Rehabilitation and Senior Citizens
Origin: Streich, Patricia
Publisher: Canadian Housing Design Council, Ottawa
Year: 1982

11 Category: A1 Policy and Program Development
Title: Public Policy for Home Improvements, Repairs and Services: A Strategic Planning Approach
Origin: Miller, John
Publisher: Consumer and Corporate Affairs Canada
Year: 1982

12 Category: A1 Policy and Program Development
Title: Aspects of Housing Policy and Practice in Northern Ireland
Origin: Singleton, Dale (ed.)
Publisher: Queen's University of Belfast
Year: 1983

13 Category: A1 Policy and Program Development
Title: Le role de l'etat dans la restauration et la renovation du logement
Origin: Letartre, Pierre A.
Publisher: Universite Laval, Quebec
Year: 1983

14 Category: A1 Policy and Program Development
Title: Public Sector Assistance for Housing Renovation
Origin: Maslove, Allan M.
Publisher: CMHC
Year: 1983

15 Category: A1 Policy and Program Development
Title: The Role of Government in Housing Rehabilitation
Origin: Smith, Stuart (Univ. of New Brunswick)
Publisher: CMHC
Year: 1983

16 Category: A1 Policy and Program Development
Title: Upgrading of the Existing Housing Stock: Programs and Policies in Canada
Origin: Hornsby, Keith
Publisher: CMHC
Year: 1983

17 Category: A1 Policy and Program Development
Title: Policies for Improving Housing Quality: A Comparison of Demand and Supply Subsidies
Origin: Yildiz, Orhan M.
Publisher: Rand Corp., Santa Monica, California
Year: 1984

18 Category: A1 Policy and Program Development
Title: Home Improvement in Scotland -- A New Approach
Origin: Scottish Development Department
Publisher: H.M.S.O., London
Year: 1985

19 Category: A1 Policy and Program Development
Title: Housing Policy: An Introduction
Origin: Balchin, Paul N
Publisher: Croom Helm, London
Year: 1985

20 Category: A1 Policy and Program Development
Title: Housing the Needy: Assisted Housing and Residential Rehabilitation (Position Paper of CAHRO 1985)
Origin: Smith, Peter
Publisher: The Canadian Assoc. of Housing & Renewal Officials
Year: 1985

21 Category: A1 Policy and Program Development
Title: Improving Our Homes: NHIC Discussion Document with Proposals for a Better Use of Resources
Origin: Jones, C.
Publisher: National Home Improvement Council, London
Year: 1985

22 Category: A1 Policy and Program Development
Title: New Construction vs. Rehabilitation: The Tradeoff in Meeting America's Housing Needs Working Paper No. 85-92
Origin: Rothenberg, Jerome
Publisher: Univ.of California-Inst. of Business & Econ. Research
Year: 1985

23 Category: A1 Policy and Program Development
Title: Response to CMHC Proposed Changes to the Residential Rehabilitation Assistance Program
Origin: Association of Municipalities of Ont.
Publisher: The Association of Municipalities of Canada
Year: 1985

24 Category: A1 Policy and Program Development
Title: Review of Private Sector House Improvement Policy
Origin: Scottish Development Department
Publisher: Scottish Development Department, Edinburgh
Year: 1985

25 Category: A1 Policy and Program Development
Title: The Residential Rehabilitation Assistance Program: Position Paper
Origin: Yauk, Tom
Publisher: Canadian Assoc. of Housing and Renewal Officials
Year: 1985

26 Category: A1 Policy and Program Development
Title: Government Involvement in Residential Renovations: A Rationale Review and Study of Intervention Impacts
Origin: Hamilton , S.W. Capozza, Dennis Helsley, Robert
Publisher: CMHC
Year: 1986

27 Category: A1 Policy and Program Development
Title: Consultation Paper on Housing Renovation
Origin: CMHC
Publisher: CMHC
Year: 1987

28 Category: A1 Policy and Program Development
Title: Housing: A Canadian Perspective
Origin: Sayegh, Kamal S.
Publisher: Academy Book, Ottawa
Year: 1987

29 Category: A1 Policy and Program Development
Title: Residential Renovation Overview
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1988

30 Category: A1 Policy and Program Development
Title: The Renovation Consultation Process Round One Consensus and Round Two Options
Origin: CMHC
Publisher: CMHC
Year: 1988

31 Category: A2 Organization and Management
Title: A Review of the Department of Northern Saskatchewan's Delivery of the RNH Residential Rehabilitation Assistance Program ...
Origin: Joint CMHC-DNS Committee
Publisher: CMHC/Department of Northern Saskatchewan
Year: 1978

32 Category: A2 Organization and Management
Title: Making Local Rehabilitation Work: Public/Private Relationships -- NAHRO Operational Guide
Origin: Ehrmann, Michael
Publisher: National Association of Housing Renewal Officials
Year: 1978

33 Category: A2 Organization and Management
Title: Administering a Multifamily Rehabilitation Program
Origin: Housing Action Council, White Plains, NY Ehrmann, Michael Gordon, Alan (et al.)
Publisher: HUD
Year: 1979

34 Category: A2 Organization and Management
Title: Housing and Neighbourhood Strategies
Origin: Dept. of Environmental Planning,
Publisher: Department of Environmental Planning,Winnipeg,Manitoba
Year: 1979

35 Category: A2 Organization and Management
Title: The Rehabilitation Profession -- A NAHRO Operational Guide
Origin: Levatino-Donoghue, Adrienne
Publisher: National Assoc. of Housing & Redevelopment Officials
Year: 1979

36 Category: A2 Organization and Management
Title: Action Plan - Societe du patrimoine urbain de Montreal
Origin: Societe du patrimoine urbain de Montreal
Publisher: La Societe, Montreal
Year: 1980

37 Category: A2 Organization and Management
Title: Housing Action Areas and the Role of Housing Associations
Origin: Department of the Environment, U.K. Housing Services Advisory Group
Publisher: Department of the Environment, U.K.
Year: 1981

38 Category: A2 Organization and Management
Title: Housing Rehabilitation for Small Cities: The Community Development Approach
Origin: Mitchell, Helen (et al.)
Publisher: HUD/National League of Cities
Year: 1981

39 Category: A2 Organization and Management
Title: Small Town Administration of a Community Development Block Grant (HAC Technical Series)
Origin: Housing Assistance Council
Publisher: Housing Assistance Council
Year: 1981

40 Category: A2 Organization and Management
Title: A Profile of Successful Maintenance and Occupancy Experience in Canada
Origin: Hale, Robert L.
Publisher: CMHC
Year: 1982

41 Category: A2 Organization and Management
Title: Streamlining Rehabilitation Programs
Origin: Dialogue Systems Inc.
Publisher: HUD-Office of Community Plng.& Develop./Off.of Rehab.
Year: 1983

42 Category: A2 Organization and Management
Title: The Life Cycle of RRAP in the City of Halifax
Origin: CMHC
Publisher: CMHC
Year: 1983

43 Category: A2 Organization and Management
Title: Good Practice in Area Improvement
Origin: Department of the Environment, U.K.
Publisher: Her Majesty's Stationery Office(H.M.S.O.), London, U.K.
Year: 1984

44 Category: A2 Organization and Management
Title: Housing Associations and Older Housing: The Rehabilitation Process -- Research Memorandum 96
Origin: Brown, R.J. Clements, V.R. Watson, C.J.
Publisher: Center for Urban & Regional Studies, Birmingham Univ.
Year: 1984

45 Category: A2 Organization and Management
Title: Housing Associations and Rehabilitation in Scotland -- CURR Discussion Paper No. 13
Origin: MacLennan, Duncan Brailey, Mary J.
Publisher: University of Glasgow
Year: 1984

46 Category: A2 Organization and Management
Title: Procedures for Batch Rehabilitation in Atlantic Canada
Origin: Gardner Pinfold Consulting Economists
Publisher: CMHC
Year: 1984

47 Category: A2 Organization and Management
Title: Feasibility Study of a Warranty System for Residential Renovation
Origin: MH Financial Consultants
Publisher: CMHC
Year: 1985

48 Category: A2 Organization and Management
Title: Helping Owner-Occupiers Improve Their Homes
Origin: The Building Societies Association
Publisher: The Building Societies Association
Year: 1985

49 Category: A2 Organization and Management
Title: Home Improvement in Scotland - A New Approach: Government Proposals for Encouraging Repair and Improvement of Private Sector Housing
Origin: Secretary of State for Scotland
Publisher: H.M.S.O., London
Year: 1985

50 Category: A2 Organization and Management
Title: Home Improvement-A New Approach:Government Proposals for Encouraging Repair & Improvement of Private Sctr Housing in England & Wales
Origin: Secretary of State for the Environment Secretary of State for Wales
Publisher: H.M.S.O., London
Year: 1985

51 Category: A2 Organization and Management
Title: Implementing Urban Housing Rehabilitation Programs: A Comparison of the Federal and State Experiences
Origin: Rafter, David O.
Publisher: Journal of Urban Affairs, Spring 1985
Year: 1985

52 Category: A2 Organization and Management
Title: Review of Home Improvement Agencies
Origin: Leather, Philip
Publisher: Department of the Environment, U.K.
Year: 1985

53 Category: A2 Organization and Management
Title: Housing Rehabilitation for Small Cities -- Second Edition: The Community Development Approach
Origin: Richardson, Peter
Publisher: HUD
Year: 1986

54 Category: A2 Organization and Management
Title: Municipal Non-Profit Housing: Winnipeg Housing Rehabilitation Corporation -- Occasional Paper No. 13
Origin: Newman, Linda Henry
Publisher: Institute of Urban Studies, University of Winnipeg
Year: 1986

55 Category: A3 Finance
Title: FHA Title I Property Improvement Loans in Public Rehabilitation Programs: Case Studies
Origin: Office of Urban Rehabilitation and Community Reinvestment
Publisher: HUD, Washington D.C.
Year: 1979

56 Category: A3 Finance
Title: Financing Multifamily Rehabilitation: A Guidebook for Local Government
Origin: HUD-Office of Community Planning and Development
Publisher: HUD
Year: 1979

57 Category: A3 Finance
Title: A Case Study: Residential Property in Kitsilano, Vancouver - The Financial Feasibility of Six Development Alternatives
Origin: DeRoo, Jackie
Publisher: University of British Columbia
Year: 1981

58 Category: A3 Finance
Title: An Analysis of Streamlined Loan Processing Procedures in Local Housing Rehabilitation Programs
Origin: Voight, Rob Naake, Joan M.
Publisher: Richardson Burgwyn Associates, Denver, Colorado
Year: 1981

59 Category: A3 Finance
Title: Housing Strategy and Investment Programme 1982-1983
Origin: Greater London Council
Publisher: Greater London Council
Year: 1981

60 Category: A3 Finance
Title: Financing Multifamily Rental Housing
Origin: Nolan, John R.
Publisher: Centre for Community Development & Preservation
Year: 1983

61 Category: A3 Finance
Title: Syndicating Low and Moderate Income Housing
Origin: Nolon, John R. Smith, Michael G.
Publisher: Centre for Community Development & Preservation
Year: 1983

62 Category: A3 Finance
Title: Housing Investment Programs
Origin: Gay, Oonagh
Publisher: British House of Commons Library Research Division
Year: 1984

63 Category: A3 Finance
Title: House Renovation Grants: Are They Hitting the Target?
Origin: Chambers, D. Parkinson, N.
Publisher: Thames Polytechnic/Greater London Council, London
Year: 1987

64 Category: A4 Regulations and Standards
Title: Impact of Building Codes on Housing Rehab (Hearing Before Committee on Banking, Housing & Urban Affairs, 95th Congress/2nd Session)
Origin: Proxmire, William-Chairman
Publisher: U.S. Government Printing Office
Year: 1978

65 Category: A4 Regulations and Standards
Title: Impact of Building Regulations on Rehabilitation -- Status and Technical Needs
Origin: Gross, James G. Pielert, James H. Cooke, Patrick W.
Publisher: National Bureau of Standards, Washington D.C.
Year: 1979

66 Category: A4 Regulations and Standards
Title: Code Programming and Housing Rehabilitation
Origin: Centre for Community Dev. & Preservation
Publisher: Center for Community Development & Preservation, N.Y.
Year: 1980

67 Category: A4 Regulations and Standards
Title: Heritage Sensitive Rehabilitation and RRAP
Origin: Kalman, Harold J.
Publisher: CMHC
Year: 1980

68 Category: A4 Regulations and Standards
Title: Housing Stock Modernization Study: Additions
Origin: East York Planning Department
Publisher: East York Planning Department
Year: 1981

69 Category: A4 Regulations and Standards
Title: Improving Building Regulations for Rehabilitation
Origin: Gross, James G.
Publisher: National Bureau of Standards, Washington D.C.
Year: 1982

70 Category: A4 Regulations and Standards
Title: Response to Residential Renovation: Proposed Part XI of the Building Code
Origin: Association of Municipalities of Ont.
Publisher: The Association of Municipalities of Ontario
Year: 1982

71 Category: A4 Regulations and Standards
Title: The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (revised edition)
Origin: U.S Department of the Interior National Park Service Preservation Assistance Division
Publisher: U.S. Government Printing Office, Washington, D.C.
Year: 1983

72 Category: A4 Regulations and Standards
Title: Zoning and Historic Preservation
Origin: Paseltiner, Ellen K. Tyler, Deborah
Publisher: Landmarks Preservation Council, Chicago, Illinois
Year: 1983

73 Category: A4 Regulations and Standards
Title: How To Make Cities Liveable: Design Guidelines for Urban Homesteading
Origin: Robinette, Gary O.
Publisher: Van Nostrand Reinhold, Florence, Kentucky
Year: 1984

74 Category: A4 Regulations and Standards
Title: The Secretary of the Interior's Standards for Historic Preservation Projects With Guidelines for Applying the Standards
Origin: Dept. of Interior, National Park Dept. Preservation Assistance Division
Publisher: U.S. Government Printing Office, Washington D.C.
Year: 1985

75 Category: A4 Regulations and Standards
Title: Facilitating Production of Affordable Housing Through Regulatory Reform and Streamlining Approval Processes
Origin: CMHC-Research Division
Publisher: CMHC
Year: 1986

76 Category: A4 Regulations and Standards
Title: Rehabilitation Guidelines (11 volumes)
Origin: National Institute of Building Sciences
Publisher: HUD
Year: 1986

77 Category: A4 Regulations and Standards
Title: The Impacts of Government Regulation on Residential Renovation -- Discussion Paper for CMHC
Origin: Iredale, W.Randle
Publisher: The Iredale Partnership
Year: 1986

78 Category: A4 Regulations and Standards
Title: Standards for the Rehabilitation of Residential Buildings: Residential Rehabilitation Assistance Programs
Origin: CMHC
Publisher: CMHC
Year: 1987

79 Category: A5 Legislation
Title: Government Involvement in Residential Renovation: The Legal Basis -- Discussion Paper
Origin: Denhez, Marc C.
Publisher: CMHC
Year: 1986

80 Category: A5 Legislation
Title: Housing Improvement and Repair
Origin: Wright, C.J.
Publisher: Sweet and Maxwell
Year: 1986

81 Category: A5 Legislation
Title: The Provinces & Property Maintenance Bylaws (A Review of Provincial Enabling Legislation, Policies & Activities ...)
Origin: Hale, Robert L. Jr.
Publisher: CMHC
Year: 1986

82 Category: A6 Evaluation
Title: A Follow-up to the Evaluation of the Residential Rehabilitation Assistance Program
Origin: Rostum, Hussein
Publisher: CMHC-Program Evaluation Unit
Year: 1978

83 Category: A6 Evaluation
Title: An Evaluation of RRAP for Landlords in Seven Municipal Areas
Origin: Rostum, Hussein
Publisher: CMHC-Program Evaluation Unit
Year: 1978

84 Category: A6 Evaluation
Title: Evaluation Report: Neighbourhood Improvement Program, Residential Rehabilitation Assistance Program
Origin: Edmonton City Planning Department
Publisher: Edmonton City Planning Department
Year: 1978

85 Category: A6 Evaluation
Title: An Evaluation of RRAP: A Report on the Urban Residential Rehabilitation Assistance Program ...
Origin: Social Policy Research Associates
Publisher: CMHC
Year: 1979

86 Category: A6 Evaluation
Title: Applied Program Evaluation in Local Government
Origin: Poister, Theodore H. McDavid, James C. Magoun, Anne H.
Publisher: D.C. Heath and Company
Year: 1979

87 Category: A6 Evaluation
Title: Millions of Dollars for Rehabilitation Housing Can Be Used More Effectively
Origin: Comptroller General,General Acctg Office
Publisher: General Accounting Office, Washington D.C.
Year: 1979

88 Category: A6 Evaluation
Title: Report on the Achievements of the Rural Residential Rehabilitation Assistance Program
Origin: Rostum, Hussein
Publisher: CMHC
Year: 1979

89 Category: A6 Evaluation
Title: Residential Rehabilitation Program: Evaluation of Effectiveness
Origin: CMHC-Program Analysis Group
Publisher: CMHC
Year: 1979

90 Category: A6 Evaluation
Title: An Evaluation of the Rural Home Repair Action Program for the Poor
Origin: Sketchley, William E. Bruckner, Joyce E. Fitzgerald, T.M.
Publisher: Urban Systems Research & Engineering Inc., Cambridge MA
Year: 1980

91 Category: A6 Evaluation
Title: Annual Report to Congress on the Section 312 Rehabilitation Loan Program
Origin: HUD-Office of Community Planning & Dev. Office of Evaluation
Publisher: HUD
Year: 1980

92 Category: A6 Evaluation
Title: Case Study Evaluation of the Boston Neighbourhood Improvement Program in Winston-Salem, North Carolina
Origin: Rullestad, Ellyn Rohe, William Burby, Raymond J.
Publisher: University of North Carolina, Chapel Hill, N.C.
Year: 1980

93 Category: A6 Evaluation
Title: Evaluation of the Physical Condition of Public Housing Stock (Vol. 2: Modernization)
Origin: Perkins & Will Inc. The Ehren Krantz Group HUD
Publisher: Perkins & Will Inc./HUD
Year: 1980

94 Category: A6 Evaluation
Title: Housing Improvements and Upgrading in the Housing Allowance Demand Experiment
Origin: Merrill, Sally R. Joseph, Catherine A.
Publisher: NTIS-U.S. Department of Commerce, Virginia
Year: 1980

95 Category: A6 Evaluation
Title: Study of the State of Maine Housing Rehabilitation Project
Origin: Horan, James F. Ahn, Kenneth K. Huq, M.Abdul (et al.)
Publisher: Urban Institute
Year: 1980

96 Category: A6 Evaluation
Title: The Effectiveness of Federal Home Repair and Improvement Programs in Meeting Elderly Homeowner Needs
Origin: Mayer, Neil Olson, Lee
Publisher: Urban Institute, Washington, DC
Year: 1980

97 Category: A6 Evaluation
Title: Evaluation of the Urban Homesteading Demonstration Program, Volumes I-V
Origin: Blackburn, A.J. Millman, M. B. Schnare, A.B. (et al.)
Publisher: Urban Systems Research & Engineering, Inc.
Year: 1981

98 Category: A6 Evaluation
Title: Evaluation of the Urban Reinvestment Task Force: Neighbourhood Housing Services and the Neighbourhood Reinvestment Corporation
Origin: Robinson, Maynard T.
Publisher: Urban Systems Research and Engineering
Year: 1981

99 Category: A6 Evaluation
Title: More Can Be Done to Measure HUD's Success in Using Millions of Dollars for Rehabilitating Housing...
Origin: U.S. General Accounting Office
Publisher: U.S. General Accounting Office, Washington D.C.
Year: 1981

100 Category: A6 Evaluation
Title: Neighbourhood Improvement Program: An Evaluation (Final Report)
Origin: Project Planning Branch
Publisher: Ministry of Municipal Affairs & Housing, Ontario
Year: 1981

101 Category: A6 Evaluation
Title: Neighbourhood Improvement Program: An Evaluation Summary Report
Origin: Project Planning Branch
Publisher: Ontario Ministry of Housing, Community Renewal Branch
Year: 1981

102 Category: A6 Evaluation
Title: The Impact of the Neighbourhood Improvement Program on the City of Toronto
Origin: Prashad, Neil Grant, Jeremy Schepanski, Mirosia (et al.)
Publisher: CMHC
Year: 1981

103 Category: A6 Evaluation
Title: Evaluation of the Seven City Home Maintenance Demonstration for the Elderly, Vol. 1
Origin: Ferguson, Gary Holin, Mary Joel Moss, William G.
Publisher: Urban Systems Research & Engineering Inc., Cambridge MA
Year: 1982

104 Category: A6 Evaluation
Title: Rental Rehabilitation Program Demonstration: Experiences of First Round Participating Communities
Origin: HUD-Office of Program Analysis & Eval. HUD-Office of Community Planning & Dev.
Publisher: HUD
Year: 1983

105 Category: A6 Evaluation
Title: Seven City Home Maintenance Demonstration for the Elderly (Vol. 2: Supplemental and Technical Appendices)
Origin: HUD-Office of Policy Development &Resrch
Publisher: Urban Systems Research & Engineering Inc., Cambridge MA
Year: 1983

106 Category: A6 Evaluation
Title: Summary Report: Evaluation of the On-Reserve Housing Program
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1985

107 Category: A6 Evaluation
Title: CMHC Program Evaluation of the Residential Rehabilitation Assistance Program: Summary Report
Origin: Anderson, Judith
Publisher: CMHC
Year: 1986

108 Category: A6 Evaluation
Title: Community Development Strategies Evaluation [Various Reports]
Origin: (various authors)
Publisher: HUD-Office Policy Development and Research
Year: 1986

109 Category: A6 Evaluation
Title: Evaluating the New Approach to Home Improvement
Origin: MacLennan, D. Munro, M.
Publisher: Housing Review, V35, No. 5
Year: 1986

110 Category: A6 Evaluation
Title: Evaluation of the Residential Rehabilitation Assistance Program
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1986

111 Category: A6 Evaluation
Title: Assessment Report - Public Housing Evaluation
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1987

112 Category: A6 Evaluation
Title: Evaluation of the Canadian Homeownership Stimulation Plan and the Canada Home Renovation Plan
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1987

113 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: European Housing Rehabilitation Experience: Summary and Analysis (NAHRO Publication No. 595)
Origin: Dumouchel, J.Robert (et al.)
Publisher: National Assoc. of Housing & Redevelopment Officials
Year: 1978

114 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Residential Rehabilitation in Canada - Technical Paper
Origin: Tsang, Eric
Publisher: CMHC
Year: 1979

115 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Regional Housing Rehabilitation Institute: An Inter-Municipal Approach to Housing Rehabilitation
Origin: Goedert, Jeanne E. Blake, Jennifer L.
Publisher: The Urban Institute, Washington D.C.
Year: 1980

116 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Guide to Local Multifamily Rehabilitation Programs: Lessons Learned from the Neighbourhood Strategy Areas (NSA) Demonstration
Origin: Sorkin, Donna L. Ferris, Nancy B.
Publisher: Public Technology Inc., Washington D.C.
Year: 1982

117 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Housing Block Grant Activity in Dallas: A Case Study
Origin: U.S. General Accounting Office
Publisher: U.S. General Accounting Office
Year: 1982

118 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Housing Block Grant Activity in Pittsburgh: A Case Study
Origin: U.S. General Accounting Office
Publisher: U.S. General Accounting Office
Year: 1982

119 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Housing Block Grant Activity in Seattle: A Case Study
Origin: U.S. General Accounting Office
Publisher: U.S. General Accounting Office
Year: 1982

120 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: The Role of Government in Rehabilitation: A Review of Literature (Prepared for the Program Evaluation Division)
Origin: Mancer, Kathleen
Publisher: CMHC
Year: 1982

121 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: The Urban Residential Rehabilitation Assistance Program and the Neighbourhood Improvement Plan: 1981 Trends
Origin: CMHC
Publisher: CMHC
Year: 1982

122 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Homes Old and New: A Housing Strategy for the Eighties
Origin: Royal Institute of British Architects
Publisher: RIBA Publications Limited
Year: 1983

123 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Rental Rehabilitation With Limited Federal Involvement: Who is Doing it? At What Cost? Who Benefits?
Origin: General Accounting Office
Publisher: General Accounting Office, Washington D.C.
Year: 1983

124 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Section 167(k); Analysis of Impacts and Recommendations for the Future
Origin: Tuccillo, John Reigeluth, George Hulten, Charles
Publisher: The Urban Institute, Washington
Year: 1983

125 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Public Housing Regeneration -- Occasional Paper No. 6
Origin: Lithgow, Laurie
Publisher: University of Winnipeg, Institute of Urban Studies
Year: 1984

126 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Rental Rehabilitation: The Split-Subsidy Approach
Origin: Dialogue Systems, Inc., New York
Publisher: HUD
Year: 1984

127 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: A Guide to Housing Rehabilitation Programs
Origin: HUD
Publisher: HUD
Year: 1985

128 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: 1986 Consolidated Annual Report to Congress on Community Development Programs
Origin: HUD-Office of Community Planning
Publisher: HUD
Year: 1986

129 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: A Guide to Tax-Advantaged Rehabilitation
Origin: Oldham, Sally G. Boyle, Jayne F. Ginsberg, Stuart H.
Publisher: National Trust for Historic Preservation, Washington,DC
Year: 1986

130 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: Government Involvement in Residential Renovation--Intervention Impacts
Origin: Phipps, A.
Publisher: University of Saskatchewan
Year: 1986

131 Category: A7 Other (Analysis of Trends, Expenditures, Strategies, Activities, etc.)
Title: High-Rise Rehabilitation Project
Origin: Ontario Ministry of Housing
Publisher: Ontario Ministry of Housing
Year: 1987

B. INDUSTRY AND MARKET STUDIES

132 Category: B1 Structure and Operations
Title: La gestion du stock de logement: examen de quelques questions a partir d'une revue selective critique de la litterature
Origin: Mathews, Georges Divay, Gerard
Publisher: INRS-Urbanization
Year: 1978

133 Category: B1 Structure and Operations
Title: Investigation of Difficult to Let Housing: A Selection of Strategies for Improving Estates
Origin: Department of the Environment, U.K.
Publisher: Department of the Environment, U.K.
Year: 1979

134 Category: B1 Structure and Operations
Title: The Planner's Role in Facilitating Private Sector Reinvestment
Origin: Marino, Dennis R. Rosser, Lawrence B. Rozran, Andrea R.
Publisher: American Planning Association
Year: 1979

135 Category: B1 Structure and Operations
Title: A Pilot Investigation of Characteristics of Renovation and Rehabilitation Contractors
Origin: Clark, John
Publisher: CMHC
Year: 1980

136 Category: B1 Structure and Operations
Title: Residential Rehabilitation and Conversion: Process and Issues (Interim Report: The Business of Renovations in the City of Toronto)
Origin: Anderson, W.G.
Publisher: Ontario Ministry of Housing
Year: 1980

137 Category: B1 Structure and Operations
Title: An Examination of the Characteristics of Rehabilitation Contractors: Pilot Study for Ottawa
Origin: Clark, John
Publisher: CMHC
Year: 1981

138 Category: B1 Structure and Operations
Title: Blueprint For Cooperation: Working With Contractors in Rehabilitation Programs
Origin: Dialogue Systems Inc., N.Y.
Publisher: HUD-Office of Urban Rehabilitation
Year: 1982

139 Category: B1 Structure and Operations
Title: Home Repair and Renovation: Problems and Prospects in the Industry
Origin: Auld, John W.
Publisher: Consumer and Corporate Affairs Canada
Year: 1982

140 Category: B1 Structure and Operations
Title: A Task Analysis, Knowledge and Skills Identification Study of Occupants in the Residential Rehabilitation Industry: Phase II Report
Origin: Owen Consulting Group
Publisher: CMHC
Year: 1983

141 Category: B1 Structure and Operations
Title: The Toronto Renovators: The Structure of the Industry and the Operation of its' Firms
Origin: Caskie, Donald M.
Publisher: CMHC
Year: 1983

142 Category: B1 Structure and Operations
Title: Quebec House Builders Study: A Profile and Perspective: Summary
Origin: Langlais, Hurtubise and Associates
Publisher: CMHC
Year: 1984

143 Category: B1 Structure and Operations
Title: Review of Alberta's Home Renovation Industry
Origin: Copithorne, Reginald B.
Publisher: Colony Park Enterprises, Edmonton, Alberta
Year: 1984

144 Category: B1 Structure and Operations
Title: Looking After the Nation's Housing Stock: Can We Leave it to Market Forces?
Origin: Whitehead
Publisher: Public Money, V5. No. 3
Year: 1985

145 Category: B1 Structure and Operations
Title: Research Design: Development of a Profile of the Residential Renovation Industry in Nova Scotia
Origin: Gardner Pinfold Consulting Economists
Publisher: CMHC
Year: 1985

146 Category: B1 Structure and Operations
Title: Housing and Business Development Through Community Development Corporations
Origin: Hershey, Stuart S.
Publisher: MIS /reports, V18, No. 8
Year: 1986

147 Category: B1 Structure and Operations
Title: The Residential Construction Industry: Problems in Shifting from New Construction to Renovation Activities
Origin: Dodds, Carol
Publisher: National Library of Canada, Ottawa
Year: 1986

148 Category: B1 Structure and Operations
Title: A Study of the Residential Renovation Industry in Nova Scotia: Preliminary Results
Origin: DPA Group (Fredericton)
Publisher: CMHC
Year: 1987

149 Category: B1 Structure and Operations
Title: Energy Related Business Development Project: Final Report
Origin: CMHC
Publisher: U.S. Department of Energy
Year: 1987

150 Category: B1 Structure and Operations
Title: Final Report: Nova Scotia Residential Renovation Industry Study
Origin: DPA Group
Publisher: CMHC
Year: 1987

151 Category: B1 Structure and Operations
Title: National Residential Renovation Industry Survey: Summary of Preliminary Findings
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1987

152 Category: B1 Structure and Operations
Title: The Renovation Sector of the Canadian Home Building Industry: A Discussion Paper
Origin: Canadian Home Builders' Association
Publisher: C.H.B.A., Ottawa
Year: 1988

153 Category: B2 Finance
Title: Housing Conservation in Older Urban Areas: A Mortgage Insurance Approach
Origin: Phillips, Kenneth F. Teitz, Michael B.
Publisher: The Institute of Urban and Regional Development
Year: 1978

154 Category: B2 Finance
Title: The Roles of Lending, Race, Ownership and Neighbourhood Change in Rental Housing Rehabilitation
Origin: Mayer, Neil S.
Publisher: The Urban Institute, Washington D.C.
Year: 1979

155 Category: B2 Finance
Title: 'Rental Properties Can Be Rehabilitated Using Private Investment, Subsidy Techniques', in Journal of Housing, V37(9), Oct. 1980
Origin: Dodge, R.I.
Publisher: Journal of Housing V37(9)
Year: 1980

156 Category: B2 Finance
Title: Innovations in Housing Renovation: Techniques for Financing Multifamily Housing Rehabilitation
Origin: Noonan, Rosemarie Gordon, Alan
Publisher: Center for Community Development & Preservation
Year: 1982

157 Category: B2 Finance
Title: Housing Receivership and Self-Help Neighbourhood Revitalization
Origin: Listokin, David Allewelt, Lizabeth Nemeth, James L.
Publisher: Rutgers, Univ.of N.J., Center for Urban Policy Research
Year: 1985

158 Category: B2 Finance
Title: Survey of Lenders on Financing of Home Improvements
Origin: Clayton Research Associates Limited
Publisher: CMHC
Year: 1985

159 Category: B3 Supply and Demand
Title: Residential Rehabilitation in Canada: Management Summary
Origin: CMHC-Program and Market Requirements Div
Publisher: CMHC
Year: 1979

160 Category: B3 Supply and Demand
Title: Additions to the Housing Supply by Means Other Than New Construction
Origin: McGough, Duane T. HUD-Office of Policy Dev. & Research
Publisher: HUD
Year: 1982

161 Category: B3 Supply and Demand
Title: Housing Economics (Reconstructing Housing)
Origin: MacLennan, Duncan
Publisher: Longman Group Limited, U.K.
Year: 1982

162 Category: B3 Supply and Demand
Title: Adapting Planning Principles to Promote Housing Transformation
Origin: Schlaepfer, Matthias Burnett, Ronald
Publisher: CMHC
Year: 1983

163 Category: B3 Supply and Demand
Title: Improvement for Sale by Local Authorities: Report on a Survey of Local Authority Improvement for Sale
Origin: Kirkham, Anne
Publisher: H.M.S.O., London
Year: 1983

164 Category: B3 Supply and Demand
Title: The Canadian Renovation Market (Prepared for the 43rd National Conference/Exposition, CHBA, 2-5 February 1986, Edmonton, Alberta
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1986

165 Category: B3 Supply and Demand
Title: The Demand From Residential Renovation for Selected Wood Based Building Products
Origin: Clayton Research Associates Limited
Publisher: Clayton Research Associates Limited, Toronto
Year: 1986

166 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Expenditures on Housing Maintenance and Repairs: Some Recent Evidence -- An Analysis of Expenditures Made by Homeowners in Toronto
Origin: Philip, Scott Morrison
Publisher: University of Toronto
Year: 1978

167 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Maintenance and Upgrading Expenditures by Urban Homeowners: Some Survey Findings (Working Paper No. 56)
Origin: Brown, Eric S
Publisher: Joint Center For Urban Studies of MIT and Harvard Univ.
Year: 1979

168 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Residential Renovation Potential in Canadian Settlements: Halifax Pilot Study
Origin: Scanada Consultants
Publisher: Scanada Consultants, Ottawa
Year: 1979

169 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Determinants of Rental Rehabilitation -- A Proposal Prepared For Market Forecasts and Analysis Division, CMHC
Origin: Peter Barnard Associates Environics Research Group
Publisher: Peter Barnard Associates
Year: 1981

170 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Renewal of Older Housing Areas: Into the Eighties
Origin: Royal Town Planning Institute, London
Publisher: Royal Town Planning Institute, London
Year: 1981

171 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Determinants of Housing Repair and Improvement
Origin: Helbers, Lawrence McDowell, James L.
Publisher: Santa Monica, CA: Rand Corp
Year: 1982

172 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Determinants of Rental Rehabilitation -- DRAFT Working Paper
Origin: Vischer Skaburskis, Planners
Publisher: Vischer Skaburskis, Planners
Year: 1982

173 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Housing Rehabilitation, Move Decisions, and Neighbourhood Change: An Analysis with the Annual Housing Survey
Origin: Shear, William B. Carpenter, Bruce E. Ellis, Donna L.
Publisher: HUD
Year: 1982

174 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: The Effects of Information on Consumers' Decisions to Retrofit Their Homes
Origin: Munro, Hugh James
Publisher: National Library of Canada, Ottawa
Year: 1982

175 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: 'The Determinants of Residential Succession with Renewal Effects', in Journal of Urban Economics, V1, 1982
Origin: Fogarty, Michel S.
Publisher: Journal of Urban Economics (Journal)
Year: 1982

176 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: An Empirical Investigation of the Repair Behaviour of Neighbouring Homeowners
Origin: McConnery, Mary Elizabeth
Publisher: University Microfilms International, Ann Arbour, Mich.
Year: 1983

177 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Determinants of Rental Rehabilitation: A study of Factors Considered By RRAP (P) Applicants
Origin: Skaburskis, A. Vischer Skaburskis, Planners
Publisher: Vischer Skaburskis, Planners
Year: 1983

178 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Gentrification: A Comparison of Inner City and Suburban Housing and House Purchases in Kitchener, Ontario
Origin: Williams, Judith A.
Publisher: University of Waterloo (thesis)
Year: 1983

179 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: The Potential for Batch Rehabilitation in Atlantic Canada
Origin: Gardner Pinfold Consulting Economists
Publisher: CMHC
Year: 1983

180 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Determinants of Household Expenditures for Additions, Alterations, Replacements and Repairs to Owner-Occupied Residences
Origin: Stewart, J.B.
Publisher: Pennsylvania State University
Year: 1984

181 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Man-Computer Simulation Gaming of Inner-City Households' Mobility and Home-Renovation Decisions
Origin: Phipps, A.
Publisher: University of Saskatchewan
Year: 1985

182 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Housing Issues in the 1980's and the 1990's: Factors Which Will Affect Structural Adjustment in Residential Construction Industry
Origin: CMHC-Research Division
Publisher: CMHC
Year: 1986

183 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Residential Rehabilitation and Co-Ownership in the Inner City of Montreal: Summary
Origin: Choko, Marc H. Dansereau, Francine
Publisher: INRS-Urbanization
Year: 1986

184 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Residential Repair and Renovation in Alberta
Origin: Clayton Research Associates Limited (Alberta Home Builders Assoc.)
Publisher: Alberta Department of Housing
Year: 1986

185 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: Renovation in the 1990's: The Industry's Viewpoint
Origin: Caskie, Donald M.
Publisher: Canadian Home Builders' Association
Year: 1987

186 Category: B4 Analysis of Trends, Prospects, Determinants, etc.
Title: The Design and Renovation of Apartments: Projects and Trends of the 1980's
Origin: Casper, Dale E.
Publisher: Monticello, Ill: Vance Bibliographies
Year: 1987

187 Category: B5 Other (Processes, Entrepreneurship, etc.)
Title: How to Buy and Fix-Up an Old House: A Guide to House Renovations
Origin: Home-Tech Systems
Publisher: Home-Tech Systems, Bethesda, Md.
Year: 1978

188 Category: B5 Other (Processes, Entrepreneurship, etc.)
Title: Residential Property Conversion Subdivision, Merger and Quality Change in the Inner City Housing Stock, Metro Toronto 1958-1973
Origin: Morrison, Phillip S.
Publisher: University of Toronto
Year: 1978

189 Category: B5 Other (Processes, Entrepreneurship, etc.)
Title: 'Housing for Single Young People - A Research and Development Project', in Voluntary Housing
Origin: Edmonds, John
Publisher: York University
Year: 1979

190 Category: B5 Other (Processes, Entrepreneurship, etc.)
Title: New Role for Architects As Team Leaders in Self-Help Housing Rehabilitation
Origin: Hackney, Rod
Publisher: Ekistics, V48, No. 287
Year: 1981

191 Category: B5 Other (Processes, Entrepreneurship, etc.)
Title: 'Rehabilitation Pipeline Study - Part 1: The Story So Far', in Voluntary Housing
Origin: King, Nigel Gundry, Jill
Publisher: David Green Publications
Year: 1981

C. IMPACTS AND EFFECTS

192 Category: C1 Economic Impacts and Effects
Title: Estimated Effects of Increased Income on Homeowner Repair Expenditures (Housing Assistance Supply Experiment)
Origin: Helbers, Lawrence
Publisher: Rand Corporation, Santa Monica CA/HUD, Washington D.C.
Year: 1979

193 Category: C1 Economic Impacts and Effects
Title: Cost Estimation and Cost Variability in Residential Rehabilitation
Origin: Chapman, Robert E.
Publisher: National Bureau of Standards, Washington D.C.
Year: 1980

194 Category: C1 Economic Impacts and Effects
Title: Economic Impacts of Renovation Construction Activity
Origin: Clayton Research Associates Ltd
Publisher: Ministry of Municipal Affairs & Housing, Ontario
Year: 1980

195 Category: C1 Economic Impacts and Effects
Title: Rehabbing for Profit
Origin: Davis, Jerry C.
Publisher: McGraw-Hill, N.Y. & Toronto
Year: 1981

196 Category: C1 Economic Impacts and Effects
Title: Public Renovation Funding and the Control of Rents (Financement public de renovations et controle des loyers)
Origin: City of Ottawa,Community Dev. Department
Publisher: Community Development Dept, City of Ottawa
Year: 1982

197 Category: C1 Economic Impacts and Effects
Title: An Economic Analysis of Home Improvement Expenditures
Origin: McLaughlin, Mary Ann Mather
Publisher: Cornell University (thesis)
Year: 1984

198 Category: C1 Economic Impacts and Effects
Title: Rehabilitation of Rental Housing: The Benefits and Costs of Alternative Approaches
Origin: Division of Policy Studies
Publisher: HUD
Year: 1984

199 Category: C1 Economic Impacts and Effects
Title: Renovation Construction - Economic Impacts
Origin: Clayton Research Associates
Publisher: Clayton Research Associates
Year: 1984

200 Category: C1 Economic Impacts and Effects
Title: 'The Effects of Government Housing Policies in a Vintage Filtering Model', in Journal of Urban Economics, V16, 1984
Origin: Braid, Ralf M.
Publisher: Journal of Urban Economics (Journal)
Year: 1984

201 Category: C1 Economic Impacts and Effects
Title: 'House Prices: Under RRAPS?', in Canadian Public Policy 11(1), 1985
Origin: Mark, Jonathon H. Goldberg, Michael A.
Publisher: Canadian Public Policy (Journal)
Year: 1985

202 Category: C1 Economic Impacts and Effects
Title: The Economic Impact of the Canadian Homeownership Stimulation Plan and the Canada Home Renovation Plan
Origin: Oikawa, Dana
Publisher: CMHC
Year: 1986

203 Category: C2 Social Impacts and Effects
Title: Urban Displacement: A Reconnaissance
Origin: Grier, George Grier, Eunice The Grier Partnership
Publisher: National Technical Information Service
Year: 1978

204 Category: C2 Social Impacts and Effects
Title: Final Report on Housing Displacement
Origin: HUD-Office of Policy Development & Resch
Publisher: HUD
Year: 1979

205 Category: C2 Social Impacts and Effects
Title: Four Day Package: A Study of the GLC's Experience in the Rapid Modernization of Inter-War Flats With Tenants in Residence
Origin: Shankland Cox Partnership
Publisher: Department of the Environment, U.K.
Year: 1979

206 Category: C2 Social Impacts and Effects
Title: Report on Housing Displacement
Origin: HUD-Office of Policy Development & Resch
Publisher: HUD
Year: 1979

207 Category: C2 Social Impacts and Effects
Title: 'Neighbourhood Revitalization and Displacement: A Review of the Evidence', in Journal of the American Planning Association 45(4)1979
Origin: Sumka, H.J.
Publisher: Journal of the American Planning Association (Journal)
Year: 1979

208 Category: C2 Social Impacts and Effects
Title: Social Impacts of Housing Reinvestment in the Core Neighbourhoods of Saskatoon -- Resource Paper No. 3
Origin: Phipps, Allan G.
Publisher: CMHC
Year: 1982

209 Category: C2 Social Impacts and Effects
Title: 'Indirect Benefits of Subsidized Housing', in Journal of the American Planning Association V48(4), 1982
Origin: Varady, David P.
Publisher: Journal of the American Planning Association (Journal)
Year: 1982

210 Category: C2 Social Impacts and Effects
Title: 'Retour aux quartiers anciens -- recherches sociologiques', in Recherche sociologiques, XIV(3), 1983
Origin: Remy, J.
Publisher: Recherches sociologiques (Journal)
Year: 1983

211 Category: C2 Social Impacts and Effects
Title: An Analysis of the Effect of the Residential Rehabilitation Assistance Plan on Housing Values -- Working Paper 988
Origin: Mark, Jonathan Goldberg, Michael A.
Publisher: Faculty of Commerce & Business Admin., University of BC
Year: 1984

212 Category: C2 Social Impacts and Effects
Title: Residential Revitalization of the Central City (Montreal, P.Q.)
Origin: Tremblay, Sylvie
Publisher: Harvard University, Cambridge, Massachusetts (thesis)
Year: 1984

213 Category: C2 Social Impacts and Effects
Title: 'Spatial Differentials in Residential Displacement', in Urban Studies V21(3), 1984
Origin: Lee, B.A. Hodge, D.C.
Publisher: Urban Studies (Journal)
Year: 1984

214 Category: C2 Social Impacts and Effects
Title: Impact de la restauration dans les quartiers centraux de Montreal: Rapport final
Origin: Choko, Marc H. To Minh Chau St-Pierre, Jacques
Publisher: LARSI-UQAM Universite du Quebec a Montreal
Year: 1985

215 Category: C2 Social Impacts and Effects
Title: La restauration domicilaire du Quartier St-Sauveur: Etude du marche du logement et de la population locataire de St-Sauveur
Origin: Bedard, Michel
Publisher: Quebec Presses etudiantes, CEGEP de Limoilu
Year: 1985

216 Category: C2 Social Impacts and Effects
Title: 'An Empirical Look at Housing Rehabilitation as a Spatial Process', in Urban V22(1), 1985
Origin: McConney, Mary E.
Publisher: Urban Studies (Journal)
Year: 1985

217 Category: C2 Social Impacts and Effects
Title: ...Good Memories...I'm Gonna Stay: The Impact of RRAP Program on Elderly Homeowners in Vancouver
Origin: Atkins, Julian
Publisher: Geography Department, Simon Fraser University
Year: 1987

218 Category: C2 Social Impacts and Effects
Title: ...Good Memories...I'm Gonna Stay: The Impact of RRAP Program on Elderly Homeowners in Vancouver: Summary Report
Origin: Atkins, Julian
Publisher: Geography Department, Simon Fraser University
Year: 1987

219 Category: C2 Social Impacts and Effects
Title: The Milton Park Affair: Canada's Largest Citizen - Developer Confrontation
Origin: Helman, Claire
Publisher: Vehicule Press
Year: 1987

220 Category: C3 General Consequences and Case Studies
Title: Rehabilitation of Inner City Buildings for Family Residential Use in Vancouver
Origin: Murray, Charlotte C.
Publisher: University of British Columbia (thesis)
Year:

221 Category: C3 General Consequences and Case Studies
Title: Development Review for Winchester Square
Origin: Toronto Planning Board
Publisher: Toronto Planning Board
Year: 1978

222 Category: C3 General Consequences and Case Studies
Title: Kingsway Task Force: Technical Report
Origin: Vancouver City Planning Department
Publisher: City of Vancouver Planning Department
Year: 1978

223 Category: C3 General Consequences and Case Studies
Title: Methods of Urban Impact Analysis - HUD's Section 312 Program
Origin: Glickman, Norman J Jacobs, Susan
Publisher: Department of Housing & Urban Development
Year: 1978

224 Category: C3 General Consequences and Case Studies
Title: An Evaluation of the Local Use of Historic Districts to Stimulate Housing Rehabilitation (Working Paper No. 1130-03)
Origin: Swift, Deborah
Publisher: The Urban Institute
Year: 1979

225 Category: C3 General Consequences and Case Studies
Title: Historic Preservation and Housing Rehabilitation (Volume II)
Origin: Reigeluth, George A. Swift, Deborah Mick, Susan
Publisher: HUD
Year: 1979

226 Category: C3 General Consequences and Case Studies
Title: North Bow Special Crescent Heights -- Regal Terrace
Origin: City of Calgary Planning Department
Publisher: Calgary Planning Department
Year: 1979

227 Category: C3 General Consequences and Case Studies
Title: Property Tax Relief for Housing Rehabilitation (Volume I)
Origin: Reigeluth, George A. Reinhard, Ray M. Kleinbaum, James
Publisher: HUD
Year: 1979

228 Category: C3 General Consequences and Case Studies
Title: Slum Housing and Residential Renewal: The Case of Urban Britain
Origin: Kirby, D.A.
Publisher: Longman: London and York
Year: 1979

229 Category: C3 General Consequences and Case Studies
Title: False Creek: Area 6, Phase 1 -- Post Occupancy Evaluation
Origin: Vischer Skaburskis, Planners
Publisher: CMHC
Year: 1980

230 Category: C3 General Consequences and Case Studies
Title: Improving the Elderly's Housing: A Key to Preserving the Nation's Housing Stock and Neighbourhoods
Origin: Struyk, Raymond J Soldo, Beth J.
Publisher: Ballinger Publishing Co., Cambridge MA
Year: 1980

231 Category: C3 General Consequences and Case Studies
Title: Milton Park: Housing Ownership and Community Control
Origin: Cousineau, Christine
Publisher: Thesis
Year: 1980

232 Category: C3 General Consequences and Case Studies
Title: The Effect of the Neighbourhood Improvement Program (N.I.P.) on Residential Property Values in the Kingston 'North End'
Origin: MacKnight, Heather Anne
Publisher: Queen's University at Kingston
Year: 1980

233 Category: C3 General Consequences and Case Studies
Title: The Impact of Residential Energy Consumption Standards on Households
Origin: Andreassi, Michael Yap, Lorene Lee, Olson
Publisher: The Urban Institute, Washington, D.C.
Year: 1980

234 Category: C3 General Consequences and Case Studies
Title: Using a Multi-Site Evaluation of Housing as the Basis for Post-Occupancy Evaluation
Origin: Weidemann, Sue Anderson, James R.
Publisher: University of Illinois, Housing Research & Dev. Program
Year: 1980

235 Category: C3 General Consequences and Case Studies
Title: Focusing on Housing Rehabilitation: A British Perspective
Origin: Hetzel, Otto J.
Publisher: The Urban Lawyer, V13, No. 3
Year: 1981

236 Category: C3 General Consequences and Case Studies
Title: The Implications of Energy Retrofit on Municipal By-Laws
Origin: Kelly, Brian Heeney, David Middleton Associates
Publisher: CMHC
Year: 1981

237 Category: C3 General Consequences and Case Studies
Title: Housing Action Area Policy and Progress: The Resident's Perspective -- Research Memorandum 91
Origin: Niner, Pat Forrest, Ray
Publisher: Centre for Urban & Regional Studies, Birmingham Univ.
Year: 1982

238 Category: C3 General Consequences and Case Studies
Title: The Residential Rehabilitation Assistance Program: It's Impact on the Rental Market for the NIP 1 Area of Halifax
Origin: Fraser, Rita
Publisher: Saint Mary's University (thesis)
Year: 1982

239 Category: C3 General Consequences and Case Studies
Title: A Case Study of Local Control Over Housing Development: The Neighbourhood Strategy Demonstration
Origin: Bleakly, Kenneth (et al.)
Publisher: HUD, Washington D.C.
Year: 1983

240 Category: C3 General Consequences and Case Studies
Title: Housing Rehabilitation: Economic, Social and Policy Perspectives
Origin: Listokin, David (ed.) Center for Urban Policy Research
Publisher: State University of New Jersey, NJ
Year: 1983

241 Category: C3 General Consequences and Case Studies
Title: Readings in Historic Preservation: Why? What? How?
Origin: Williams, Norman, Jr. Kellogg, Edmund H. Gilbert, Frank B.
Publisher: Rutgers University, Centre for Urban Policy Research
Year: 1983

242 Category: C3 General Consequences and Case Studies
Title: Vancouver Neighbourhood Improvement Program: Review
Origin: Vancouver Planning Department
Publisher: Vancouver Planning Department
Year: 1983

243 Category: C3 General Consequences and Case Studies
Title: Neighbourhood Change: A Theoretical Interpretation of Three Inner City Neighbourhoods in Toronto
Origin: Ferguson, Robert W.
Publisher: University of Manitoba (thesis)
Year: 1984

244 Category: C3 General Consequences and Case Studies
Title: Neighbourhood Organizations and Community Development: Making Revitalization Work
Origin: Mayer, Neil S.
Publisher: Urban Institute, Washington D.C.
Year: 1984

245 Category: C3 General Consequences and Case Studies
Title: Residential Redevelopment in the Inner City of Vancouver: A Case Study of the Fairview Slopes
Origin: Lum, Sophia
Publisher: Queen's University at Kingston
Year: 1984

246 Category: C3 General Consequences and Case Studies
Title: 'An Examination of Selected Consequences of Revitalization in Six U.S. Cities', in Urban Studies V21(3), Aug. 1984
Origin: De Giovanni, F.F.
Publisher: Urban Studies V21(3)
Year: 1984

247 Category: C3 General Consequences and Case Studies
Title: Gentrification in Canadian Inner Cities: Patterns, Analysis, Impacts and Policy
Origin: Ley, David University of BC, Dept. of Geography
Publisher: CMHC
Year: 1985

248 Category: C3 General Consequences and Case Studies
Title: 'Corrective Measures Rehabilitation' in Utopia on Trial: Vision and Reality in Planned Housing
Origin: Coleman, Alice
Publisher: Hilary Shipman
Year: 1985

249 Category: C3 General Consequences and Case Studies
Title: L'entretien et la modernization des logements en milieu urbain
Origin: MacLennan, Duncan
Publisher: Paris: Org. de co-op & developpement economique OCDE
Year: 1986

250 Category: C3 General Consequences and Case Studies
Title: Neighbourhood Revitalization and the Old Northern Suburb
Origin: Richards, Patricia Mal
Publisher: Technical University of Nova Scotia (Halifax, NS)
Year: 1986

251 Category: C3 General Consequences and Case Studies
Title: Restauration residentielle et copropriete au centre-ville de Montreal: Rapport Final
Origin: Choko, Marc H. Dansereau, Francine
Publisher: INRS-Urbanization
Year: 1986

252 Category: C3 General Consequences and Case Studies
Title: The Housing Crisis
Origin: Gibson, Mike
Publisher: Croom Helm Ltd
Year: 1986

253 Category: C3 General Consequences and Case Studies
Title: Understanding Historic Character for Appropriate Housing Rehabilitation
Origin: Charles, Peter
Publisher: CMHC
Year: 1986

D. HOUSING CONDITIONS AND NEEDS

254 Category: D1 Data Collection
Title: Constructing Longitudinal Data Files of Quarterly Residential Alteration and Repair Activity, With Illustrative Computations
Origin: Mayer, Neil S. Goodman, John L.
Publisher: The Urban Institute, Washington, D.C.
Year: 1979

255 Category: D1 Data Collection
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Report on the Quality of the Data Collected
Origin: Ermuth, Frederick Souchen, Shirley Ekos Research Associates
Publisher: CMHC
Year: 1980

256 Category: D1 Data Collection
Title: Urban Priority List for RRAP
Origin: CMHC-Market Forecasts & Analysis Div.; CMHC-Residential Improvement Div.;CMHC-Regional Planning & Research Coord.
Publisher: CMHC
Year: 1981

257 Category: D1 Data Collection
Title: Automated Rehab Information: A Guide to Automating and Rehabilitation Loan Programs
Origin: Sunshine, Steven
Publisher: The Portland Development Commission
Year: 1982

258 Category: D1 Data Collection
Title: Information Systems for House Repair, Maintenance, and Improvement
Origin: Leather
Publisher: BURISA
Year: 1985

259 Category: D1 Data Collection
Title: Sources of Residential Rehabilitation Data (Prepared for the Building Renovation Forum, Toronto, April 14, 1986)
Origin: CMHC-Statistical Services Division
Publisher: CMHC
Year: 1986

260 Category: D2 Measurement, Methodologies
Title: Cost Estimation and Cost Variability in Residential Rehabilitation
Origin: Chapman, Robert E.
Publisher: National Bureau of Standards, Washington D.C.
Year: 1980

261 Category: D2 Measurement, Methodologies
Title: Housing Quality and Maintenance
Origin: Arnott, Richard J. Davidson, Russell Pines, David
Publisher: Queen's University, Kingston, Ontario
Year: 1980

262 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Overview of the Ottawa Pilot (Approach, Findings, Implications)
Origin: Ermuth, Frederick Graves, Frank Ekos Research Associates
Publisher: CMHC
Year: 1980

263 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Report on Survey Procedures
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1980

264 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Report on the Development of Survey Instruments
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1980

265 Category: D2 Measurement, Methodologies
Title: Planning Report for the Study of Physical House Condition, Rehabilitation Need and Potential
Origin: CMHC-Market Forecasts & Analysis Div.
Publisher: CMHC
Year: 1980

266 Category: D2 Measurement, Methodologies
Title: Final Report on the Measurement and Prediction of Housing Condition and Rehabilitation Need
Origin: Phipps, Anthony /Abt Associates, Inc. Feins, Judith D. Kirlin, John A.
Publisher: Abt Associates, Inc
Year: 1981

267 Category: D2 Measurement, Methodologies
Title: Measurement and Prediction of Housing Condition and Rehabilitation Need
Origin: Phipps, Anthony A. Feins, Judith D. Kirlin, John A.
Publisher: Abt Associates, Cambridge MA/HUD Washington D.C.
Year: 1981

268 Category: D2 Measurement, Methodologies
Title: Physical Adequacy and Affordability of Housing in America: Measurement Using Annual Housing Survey
Origin: Yezer, Anthony M.
Publisher: HUD
Year: 1981

269 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Critical Evaluation of the Survey Instruments
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1981

270 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Implications of US/Cda Pilot Studies & Washington Workshop...)
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1981

271 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Major Report
Origin: Ermuth, Frederick Graves, Frank Ekos Research Associates
Publisher: CMHC
Year: 1981

272 Category: D2 Measurement, Methodologies
Title: Pilot Study of Physical House Condition and Rehabilitation Need: Photo Essay
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1981

273 Category: D2 Measurement, Methodologies
Title: The Measurement and Prediction of Housing Condition and Rehabilitation Need
Origin: Phipps, Anthony /Abt Associates, Inc. Feins, Judith D. Kirlin, John A.
Publisher: NTIS-U.S. Department of Commerce, Virginia
Year: 1981

274 Category: D2 Measurement, Methodologies
Title: English House Condition Survey 1981, Part 1, Report of the Physical Condition Survey -- Housing Survey Report No. 12
Origin: Department of the Environment, U.K.
Publisher: Her Majesty's Stationery Office, London, England
Year: 1982

275 Category: D2 Measurement, Methodologies
Title: Housing Quality, Maintenance and Rehabilitation
Origin: Arnott, Richard Davidson, Russell Pines, David
Publisher: CMHC
Year: 1982

276 Category: D2 Measurement, Methodologies
Title: Neighbourhood Change: A Canadian Perspective
Origin: Mark, Jonathan H. Goldberg, Michael A.
Publisher: CMHC/Real Estate Council of B.C.
Year: 1983

277 Category: D2 Measurement, Methodologies
Title: Annual Housing Survey: 1981 Housing Characteristics for Selected Metropolitan Areas: Minneapolis - St. Paul, Minnesota (SMSA)
Origin: Bureau of the Census
Publisher: Bureau of the Census, Washington D.C.
Year: 1984

278 Category: D2 Measurement, Methodologies
Title: Annual Housing Survey: 1981 Housing Characteristics for Selected Metropolitan Areas: Orlando, Florida (SMSA)
Origin: Bureau of the Census
Publisher: Bureau of the Census, Washington D.C.
Year: 1984

279 Category: D2 Measurement, Methodologies
Title: Final Technical Report for the Canadian Homeownership Stimulation Plan and the Canada Home Renovation Plan Recipient Survey
Origin: EKOS Research Associates
Publisher: CMHC
Year: 1985

280 Category: D2 Measurement, Methodologies
Title: Guidelines for Local Surveys: A Basis for Preservation Planning -- National Register of Historic Places, Bulletin # 24
Origin: Derry, Anne Janal, N. Ward Schull, Carol A. (et al.)
Publisher: U.S. Department of the Interior, Washington, D.C.
Year: 1985

281 Category: D2 Measurement, Methodologies
Title: Improving Upon Survey Measures of Physical House Conditions
Origin: Ekos Research Associates
Publisher: CMHC-Program Evaluation Division
Year: 1987

282 Category: D3 Analysis of Trends and Prospects
Title: Analysis of Residential Rehabilitation Need and Activity (Ontario Reviews: Background Paper)
Origin: Stocking, R.
Publisher: Ontario Ministry of Housing
Year: 1978

283 Category: D3 Analysis of Trends and Prospects
Title: The Potential Market for Residential Renovation in Canada: A Pilot Study of Halifax
Origin: Scanada Consultants
Publisher: CMHC
Year: 1979

284 Category: D3 Analysis of Trends and Prospects
Title: Changing Face: Study of an Inner City Neighbourhood
Origin: Dragicevic, Robert Dayal, Wazir
Publisher: CMHC
Year: 1980

285 Category: D3 Analysis of Trends and Prospects
Title: Key Problems & Future Issues in Improvement of Existing Housing Stock: A Comprehensive Analysis of Western Europe & North America
Origin: Crenna, C.D.
Publisher: CMHC
Year: 1980

286 Category: D3 Analysis of Trends and Prospects
Title: The Maintenance of America's Housing Stock
Origin: Sternlieb, George
Publisher: State University Rutgers, New Brunswick, NJ
Year: 1980

287 Category: D3 Analysis of Trends and Prospects
Title: Building Toward 2001: Proceedings, November 1-4, 1981
Origin: Ralph, Gary Przybylowski, George
Publisher: Ministry of Municipal Affairs & Housing, Toronto
Year: 1981

288 Category: D3 Analysis of Trends and Prospects
Title: Changes in Housing Quality, 1974 - 1980
Origin: Burke, Paul
Publisher: HUD-Division of Housing & Demographic Analysis
Year: 1982

289 Category: D3 Analysis of Trends and Prospects
Title: People & Dwellings (Report of Results Obtained From Linking Greater London House Cond. Survey & National Dwelling & Housing Survey)
Origin: Fernandes, Cres Jarvis, Chris
Publisher: Greater London Council
Year: 1982

290 Category: D3 Analysis of Trends and Prospects
Title: America's Housing Crisis: What is to be Done?
Origin: Hartman, C. (ed.)
Publisher: Routledge and Keagan Paul, Boston
Year: 1983

291 Category: D3 Analysis of Trends and Prospects
Title: Housing Rehabilitation Research Needs for the Eighties
Origin: Brenner, William National Institute of Building Sciences
Publisher: HUD, Washington D.C.
Year: 1981

292 Category: D3 Analysis of Trends and Prospects
Title: Interpreting Feedback Information (Some Examples From Housing Maintenance)
Origin: Skinner, N.P.
Publisher: Watford, Hertfordshire: Building Research Establishment
Year: 1983

293 Category: D3 Analysis of Trends and Prospects
Title: City of Ottawa Strategic Housing Survey: Phase 1 Report
Origin: Peter Barnard Associates Social Policy Research Association Arthur Anderson & Co.
Publisher: City of Ottawa
Year: 1984

294 Category: D3 Analysis of Trends and Prospects
Title: Residential Investment in Older Neighbourhoods
Origin: Bunting, Trudi, B.
Publisher: CMHC
Year: 1984

295 Category: D3 Analysis of Trends and Prospects
Title: An Inquiry into the Condition of the Local Authority Housing Stock in England: 1985
Origin: Department of the Environment, U.K.
Publisher: Department of the Environment
Year: 1985

296 Category: D3 Analysis of Trends and Prospects
Title: Missing the Target
Origin: Wheeler
Publisher: Roof (Journal -- Sept/Oct 1985)
Year: 1985

297 Category: D3 Analysis of Trends and Prospects
Title: Reinvestment in Older, Inner-City Housing
Origin: Bunting, Trudi, B.
Publisher: CMHC
Year: 1986

298 Category: D3 Analysis of Trends and Prospects
Title: Final Report for the 1986 National Housing Study
Origin: Ekos Research Associates
Publisher: CMHC
Year: 1987

299 Category: D3 Analysis of Trends and Prospects
Title: Meeting America's Housing Needs: Through Rehabilitation of Existing Housing and Vacant Buildings
Origin: US-National Inst. of Building Sciences
Publisher: Washington, DC; National nstitute of Building Sciences
Year: 1987

300 Category: D3 Analysis of Trends and Prospects
Title: Study of the Modernization Needs of the Public and Indian Housing Stock
Origin: Abt Associates
Publisher: HUD
Year: 1987

301 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: Rehabilitation and Maintenance of Property in Canada: Some Observations and Recommendations
Origin: Ont.Assoc.of Property Standards Officers
Publisher: Ontario Assoc.of Property Standards Officers
Year: 1979

302 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: Maintenance Central for Seniors: A Model Approach to Home Repair and Maintenance
Origin: Staff of Maintenance Central for Seniors
Publisher: Maintenance Central for Seniors
Year: 1981

303 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: Patrimoine residentiel et milieu de vie: sondage des residents du plateau Mont Royal et de Milton Parc: Rapport Final
Origin: Caron, C.
Publisher: Groupe d'intervention urbaine de Montreal (G.I.U.M.)
Year: 1983

304 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: The Accessible Home: Renovating for Your Disabled
Origin: Snell, Heather
Publisher: IS Five Press, Toronto
Year: 1983

305 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: Changes: Disability and the Challenge of Renovation
Origin: Topping, Bob
Publisher: Consumer and Corporate Affairs Canada, Ottawa
Year: 1985

306 Category: D4 Other (Special Needs, Local Studies, etc.)
Title: Towards Better Practice: Housing People With Disabilities
Origin: Roberts, L. Farrell, K.
Publisher: Greater London Council (GLC)
Year: 1986

E. TECHNOLOGY

307 Category: E1 Technology Development
Title: Energy Conservation in Housing Renovation: A Report -- Briefing Note No. 7
Origin: Finbow, M.
Publisher: National Federation of Housing Associations
Year: 1981

308 Category: E1 Technology Development
Title: Photographic Record of the Installation of a Foundation Retrofit on Webber Housing Units in Rankin Inlet, NWT
Origin: Buchan, Lawton, Parent
Publisher: CMHC
Year: 1982

309 Category: E1 Technology Development
Title: Steel Extension Bracket for Wall Insulation Retrofits
Origin: Dofasco Ltd (summary by Kathy Greinier)
Publisher: CMHC
Year: 1983

310 Category: E1 Technology Development
Title: The Technology of Historic American Buildings: Studies of the Materials,Craft Processes & the Mechanization of Building Construction
Origin: Jandell, H. Ward (ed.)
Publisher: Foundation for Preservation Technology, Washington, D.C
Year: 1983

311 Category: E1 Technology Development
Title: Conversion of Existing Housing for Multiple Occupancy Rental Purposes
Origin: McKellar Architects
Publisher: Alberta Dept. of Housing - Planning & Research Branch
Year: 1984

312 Category: E1 Technology Development
Title: Indoor Air Quality: 20 Existing Homes
Origin: IEC Beal Consultants Ltd
Publisher: Ministry of Municipal Affairs & Housing, Ontario
Year: 1984

313 Category: E1 Technology Development
Title: Investigation of a Technique to Reduce Air Leakage in the Wall Cavities of Older Homes
Origin: Scanada Consultants
Publisher: CMHC
Year: 1984

314 Category: E1 Technology Development
Title: The Effects of Re-Insulation on Some Houses in Winnipeg (A Before and After Field Study of Houses in Winnipeg...)
Origin: Energy Mines & Resources Canada
Publisher: Ottawa: Bett Publication
Year: 1984

315 Category: E1 Technology Development
Title: The Weatherize Project
Origin: Moffatt, R. Sebastian
Publisher: Ministry of Municipal Affairs & Housing, Ontario
Year: 1984

316 Category: E1 Technology Development
Title: Rehabilitation Technology: A State-of-the-Art Overview
Origin: Building Technology Inc.
Publisher: Building Technology Incorporated
Year: 1987

317 Category: E2 Processes and Applications
Title: Site Improvement of Older Housing
Origin: Landplan Collaborative John Cowle Architects
Publisher: CMHC
Year: 1983

318 Category: E2 Processes and Applications
Title: Home Improvements and Conversions (Ameliorations et transformations dans une maison)
Origin: Timber Research and Development Assoc.
Publisher: Lancaster: Construction Press
Year: 1978

319 Category: E2 Processes and Applications
Title: Building a Foundation for Urban Revitalization: Tools and Techniques for the Moderate Rehabilitation of Multifamily Housing
Origin: Housing Action Council Weschester County, N.Y.
Publisher: Centre for Community Development & Preservation
Year: 1979

320 Category: E2 Processes and Applications
Title: The Sensible Rehabilitation of Older Houses
Origin: Kalman, Harold
Publisher: CMHC
Year: 1979

321 Category: E2 Processes and Applications
Title: Diagnosing and Repairing House Structure Problems
Origin: Seaquist, Edgar Oliver Robinson, Jeremy Ulwick, Christine M.
Publisher: New York: McGraw-Hill
Year: 1980

322 Category: E2 Processes and Applications
Title: Field Investigation of the Performance of Residential Retrofit Insulation
Origin: Weidt, J.L. Saxler, Robert J. Rossiter, Walter
Publisher: National Bureau of Standards, Washington D.C.
Year: 1980

323 Category: E2 Processes and Applications
Title: Rehabilitation of Buildings -- Second Canadian Building Congress Proceedings 1979
Origin: National Research Council
Publisher: National Research Council
Year: 1980

324 Category: E2 Processes and Applications
Title: Building Rehabilitation Process Study
Origin: Randle Iredale Architects
Publisher: National Research Council Canada, Ottawa
Year: 1981

325 Category: E2 Processes and Applications
Title: Computer Aids to Housing Maintenance Management
Origin: Dept. of the Environment, U.K.
Publisher: London: H.M.S.O.
Year: 1981

326 Category: E2 Processes and Applications
Title: An Appraisal of Implementation Techniques in Area Conservation
Origin: Jamieson, Walter
Publisher: CMHC
Year: 1982

327 Category: E2 Processes and Applications
Title: Applying Cost-Effective Energy Standards in Rehabilitation Projects
Origin: Dialogue Systems Inc., N.Y.
Publisher: HUD
Year: 1982

328 Category: E2 Processes and Applications
Title: Computer Simulation and Retrofit Strategy for Existing Houses
Origin: Colborn, W.G.
Publisher: University of Windsor
Year: 1982

329 Category: E2 Processes and Applications
Title: Energy Conserving Features Inherent in Older Homes
Origin: Burns, John A.
Publisher: HUD & Department of the Interior
Year: 1982

330 Category: E2 Processes and Applications
Title: Rehabilitation of Inner City Buildings for Family Residential Use
Origin: Murray, Charlotte C.
Publisher: National Library of Canada, Ottawa
Year: 1982

331 Category: E2 Processes and Applications
Title: Adaptive Reuse of Existing Structures for Rural Housing Purposes
Origin: Housing Assistance Council Inc.
Publisher: HUD
Year: 1983

332 Category: E2 Processes and Applications
Title: Approval Process for Applications Related to the Rehabilitation of Existing Buildings
Origin: Murray, Charlotte C. The Iredale Partnership
Publisher: The Iredale Partnership
Year: 1983

333 Category: E2 Processes and Applications
Title: Influence of Geological Formations on the Maintenance and Rehabilitation Cost of Homes in the Ottawa Region
Origin: Anderson, Particia Singh, Sudesh Murray, Peter
Publisher: CMHC
Year: 1983

334 Category: E2 Processes and Applications
Title: Large Scale Renovation
Origin: Coombs/Kirkland/Berridge
Publisher: CMHC
Year: 1983

335 Category: E2 Processes and Applications
Title: Residential Adaptive Reuse Issues In Virginia
Origin: Yates, Larry
Publisher: Virginia Department of Housing & Community Development
Year: 1983

336 Category: E2 Processes and Applications
Title: A Methodology for Developing a Retrofit Strategy ... in 'Third International Symposium on Building Economics: Proceedings, Vol. 2'
Origin: Hall, J.D. Colborne, W.G. Wilson, N.W.
Publisher: National Research Council of Canada
Year: 1984

337 Category: E2 Processes and Applications
Title: An Energy Overview Study For Fond-du-Lac, Sask (With Special Emphasis on Energy Efficient Construction and Renovation Technique...)
Origin: Eneraction Resources Inc
Publisher: Energy Mines and Resources, Ottawa
Year: 1984

338 Category: E2 Processes and Applications
Title: Home Maintenance and Repair: A Reference Manual for Homeowners
Origin: E.A. Doherty Architects
Publisher: Alberta Municipal Affairs
Year: 1984

339 Category: E2 Processes and Applications
Title: Energy Retrofit: 19th Century Multi-Unit (Final Report)
Origin: Basic Design Ltd
Publisher: EMR/New Brunswick Energy Secretariat
Year: 1985

340 Category: E2 Processes and Applications
Title: Entretien et restauration: de la fondation a la toiture
Origin: Blouin, Marc
Publisher: Conseil des monuments et sites du Quebec, Heritage Mtl
Year: 1985

341 Category: E2 Processes and Applications
Title: High Quality Basement Accommodation in Older Homes
Origin: Thorne, D.W. Thorne, M.A.E Thorncor Holdings
Publisher: CMHC
Year: 1985

342 Category: E2 Processes and Applications
Title: The Municipal House Condition Energy Package: Analysis of Design Issues and Recommendations for Future Development
Origin: Rowe, Andy
Publisher: CMHC
Year: 1985

343 Category: E2 Processes and Applications
Title: A Health Maintenance Program for Older Buildings
Origin: Miller, Hugh C.
Publisher: Architecture, V75, No. 11
Year: 1986

344 Category: E2 Processes and Applications
Title: Co-op Housing Retrofit, South City Housing Cooperative, Saint-John, CREDA Project #2051: Final Report
Origin: Housing Alternatives Inc
Publisher: EMR- NB Energy Secretariat
Year: 1986

345 Category: E2 Processes and Applications
Title: Preserving Historic Materials
Origin: Sivinski, Valerie A. Botsai, Elmer Rosan, Shira (et al.)
Publisher: Architecture, V75, No. 11
Year: 1986

346 Category: E2 Processes and Applications
Title: The Mechanics of Building Rebirth
Origin: Gordon, Douglas E. Stubbs, M. Stephanie
Publisher: Architecture, V75, No. 11
Year: 1986

347 Category: E2 Processes and Applications
Title: L'amelioration des logements existants: ses objectifs, ses methodes, ses techniques commentee par 80 specialistes
Origin: Debomy, Pierre L.
Publisher: Paris: Editions Eyrolles
Year: 1987

348 Category: E3 Evaluation
Title: The Performance of Housing: Canadian Experience in Studying it and Putting the Results into Effect
Origin: (Prepared for Cda/Japan Housing Commt.) Tokyo, June 1981
Publisher: CMHC
Year: 1981

349 Category: E3 Evaluation
Title: The Rehabilitation of Owner Occupied Homes
Origin: Building Societies Association, London
Publisher: Building Societies Association, London
Year: 1983

350 Category: E3 Evaluation
Title: Neighbourhood Upgrading: A Realistic Assessment
Origin: Varady, David P.
Publisher: State University of New York, Albany, N.Y.
Year: 1986

F. OTHER STUDIES

351 Category: F1 Bibliographies
Title: City Redevelopment (A Bibliography with Abstracts)
Origin: Kenton, Edith
Publisher: NTIS, Springfield VA
Year: 1979

352 Category: F1 Bibliographies
Title: Community Revitalization Bibliography
Origin: Housing Action Council, U.S.
Publisher: HUD, Washington D.C.
Year: 1980

353 Category: F1 Bibliographies
Title: Maintenance, Repairs and Remodeling: A List of Books for the Homeowner
Origin: Vance, Mary
Publisher: Monticello, Ill: Vance Bibliographies
Year: 1980

354 Category: F1 Bibliographies
Title: Remodeling: A Bibliography of Periodical Articles
Origin: Vance, Mary
Publisher: Monticello, Ill: Vance Bibliographies
Year: 1980

355 Category: F1 Bibliographies
Title: Home Improvements, Repairs and Services: An Annotated Bibliography
Origin: Miller, John Clemen, Robert Werdel, Frances
Publisher: Consumer and Corporate Affairs Canada
Year: 1982

356 Category: F1 Bibliographies
Title: Ontario Renews Bibliography: A Listing of Phamplets and Periodical Information Available From the Community Renewal Resource Centre
Origin: Community Renewal Resource Centre
Publisher: Ministry of Municipal Affairs & Housing, Ontario
Year: 1982

357 Category: F1 Bibliographies
Title: Housing Rehabilitation: An Upgraded Bibliography
Origin: Best, Steven L.
Publisher: Monticello, Ill: Vance Bibliographies
Year: 1985

358 Category: F1 Bibliographies
Title: Housing Policy -- An International Bibliography
Origin: Newson, Tony
Publisher: Mansell Publishing Limited, London & New York
Year: 1986

359 Category: F1 Bibliographies
Title: Reanimation, reconquete, conversion: Revue de la litterature et bibliographie selective annotee
Origin: Dansereau, Francine l'Ecuyer, Daniel
Publisher: Inst. nationale de la recherche scientifique, Univ. Que
Year: 1987

360 Category: F1 Bibliographies
Title: Directory of Federally Supported Research in Universities--IEC
Origin: Information Exchange Centre, CISTI
Publisher: Information Exchange Centre, CISTI
Year: 1988

361 Category: F2 Guides
Title: How to Plan for Renovation (Canadian Case Studies)
Origin: Benn, Bruce Kamra, Deepak Denhez, Marc Ed
Publisher: Ottawa: Heritage Canada
Year: 1979

362 Category: F2 Guides
Title: How to Develop and Operate a Successful Housing Rehabilitation Program -- Housing Rehabilitation Series No. 4
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1978

363 Category: F2 Guides
Title: Measuring Tapes and Mortgages: A Complete Guide to Buying and Renovating Non-Profit Housing
Origin: Sillaste and Nakashima (firm)
Publisher: City of Toronto Housing Department, Toronto
Year: 1978

364 Category: F2 Guides
Title: Supervisor's Guide to Rehabilitation Conversion
Origin: Keegan, Patrick Levitt Bernstein Associates
Publisher: The Architectural Press Ltd
Year: 1978

365 Category: F2 Guides
Title: A Contractor's Guide to Federally-Assisted Housing Rehabilitation -- Housing Rehabilitation Series No. 5
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1979

366 Category: F2 Guides
Title: Financial Leveraging in Community Development Rehabilitation: A Technical Assistance Guide
Origin: Ehrmann, Michael Richardson, Peter
Publisher: HUD, Washington D.C.
Year: 1979

367 Category: F2 Guides
Title: Financing Housing Rehabilitation: A Local Official's Guide to Leveraging -- Housing Rehabilitation Series No. 6
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1979

368 Category: F2 Guides
Title: Neighbourhoods: A Self-Help Sampler
Origin: HUD-Office of Neighbourhood Development
Publisher: HUD
Year: 1979

369 Category: F2 Guides
Title: A Private Lender's Guide to Development in Federally-Assisted Housing Rehabilitation -- Housing Rehabilitation Series No. 7
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1980

370 Category: F2 Guides
Title: Rehabilitation Regulations and Guidelines 1980: A Guideform for a Rehabilitation Financing Handbook -- Housing Rehabilitation No. 2
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1980

371 Category: F2 Guides
Title: The Housing Rehabilitation Handbook
Origin: Benson, J. (et al.)
Publisher: Architectural Press, London
Year: 1980

372 Category: F2 Guides
Title: Multifamily Housing: Treating the Existing Stock (A NAHRO Operational Guide)
Origin: Kolodny, Robert
Publisher: National Assoc. of Housing & Redevelopment Officials
Year: 1981

373 Category: F2 Guides
Title: The Rehabilitation Specialist Guidebook -- Housing Rehabilitation Series No. 8
Origin: Benitez, A. William Rust, Mary Gray (ed.)
Publisher: Rehab Notes Library, Tampa, Florida
Year: 1981

374 Category: F2 Guides
Title: Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary
Origin: Freas, Alan D'Yarmett
Publisher: N.Y. American Society of Civil Engineers
Year: 1982

375 Category: F2 Guides
Title: Where to Look: A Guide to Preservation Information
Origin: Advisory Council-Historic Preservation
Publisher: U.S. Government Printing Office, Washington, D.C.
Year: 1982

376 Category: F2 Guides
Title: Establishing a Home Maintenance Program for Elderly Homeowners: A Guidebook
Origin: Ferguson, Gary Holin, Mary Joel
Publisher: Urban Systems Research & Engineering Inc., Cambridge MA
Year: 1983

377 Category: F2 Guides
Title: Guide to Multifamily Homesteading
Origin: Dialogue Systems Inc.
Publisher: Dialogue Systems Inc
Year: 1983

378 Category: F2 Guides
Title: Housing Grants: How to Get Grants and Subsidies to Buy and Improve Your Home -- Second Edition
Origin: Hawkins, Nigel
Publisher: Kogan Page
Year: 1983

379 Category: F2 Guides
Title: How to Design a Rental Rehabilitation Program: A Guide for Program Operators
Origin: Richardson, Peter Dunlap, Helen Bauman, Ann
Publisher: HUD
Year: 1984

380 Category: F2 Guides
Title: Home Maintenance and Repair -- A Reference Manual for Homeowners
Origin: E.A. Doherty Architects
Publisher: Alberta Municipal Affairs
Year: 1984

381 Category: F2 Guides
Title: Housing Rehabilitation: Programs, Techniques and Resources
Origin: HUD-Off.of Policy Development & Research
Publisher: HUD
Year: 1987

382 Category: F3 Conferences, Seminars, etc. (Proceedings)
Title: Construction Research -- International Proceedings of the Seventh CIB Triennial Congress, Edinburgh, Sept 1977, Vol. 2
Origin: Alsop, Keith
Publisher: The Construction Press
Year: 1978

383 Category: F3 Conferences, Seminars, etc. (Proceedings)
Title: Congres International Conservation, Rehabilitation, Recyclage
Origin: Baker, Joseph Cardinal, Robert
Publisher: Le ministere des affaires culturelles du Quebec
Year: 1980

384 Category: F3 Conferences, Seminars, etc. (Proceedings)
Title: Research on Maintenance and Modernization (Proceedings of the Rotterdam Seminar, September 1979)
Origin: Damen, A.A.J.
Publisher: International Council for Building Research Studies
Year: 1980

385 Category: F3 Conferences, Seminars, etc. (Proceedings)
Title: Passive and Low Energy Architecture: Proceedings of the Second International PLEA Conference, Crete, Greece (June-July 1983)
Origin: Yannas, Ed S.
Publisher: Oxford, New York: Permagon Press
Year: 1983

386 Category: F3 Conferences, Seminars, etc. (Proceedings)
Title: 1987-88 Pilot Project Summary Report Renovation Contractors' Seminar
Origin: CMHC-Project Implementation Division
Publisher: CMHC
Year: 1988

387 Category: F4 International Studies
Title: Housing Renewal In Sweden
Origin: Swedish Council for Building Research
Publisher: Swedish Council for Building Research
Year: 1983

388 Category: F4 International Studies
Title: Neighbourhood Revitalization and the Post-Industrial City: A Multinational Perspective
Origin: Gale, D.E.
Publisher: Lexington Books/D.C. Heath and Company, Lexington,Mass.
Year: 1984

389 Category: F4 International Studies
Title: The Incidence and Rectification of Faults in Residential Buildings In Melbourne
Origin: Robinson, J.R.W.
Publisher: 3rd International Symposium on Bldng Economics, Ottawa
Year: 1984

390 Category: F4 International Studies
Title: 'New Houses for Old Amsterdam', in Geographical Magazine, Nov. 1984
Origin: Hull, A. Kenny, S.
Publisher: Geographical Magazine
Year: 1984

391 Category: F4 International Studies
Title: Costing Building Maintenance
Origin: Hague, D.J.
Publisher: Building Technology and Management (Journal) V25(4)
Year: 1987

392 Category: F5 Training Packages
Title: Urban Ventures: Housing Rehabilitation in America, a Transcript of the Urban Ventures School, October 22-26, 1979
Origin: Niblack, M. Ray
Publisher: The National Savings & Loans League
Year: 1979

393 Category: F5 Training Packages
Title: A Rehabilitation Skills Training Centre - Helping the Housing Industry Adjust to Rapidly Changing Needs
Origin: Hornsby, Keith
Publisher: CMHC
Year: 1982

394 Category: F5 Training Packages
Title: Evaluation of the Impact of RSTC Courses 1 and 2 on RRAP Delivery
Origin: Simmons, Laura
Publisher: CMHC
Year: 1983

395 Category: F5 Training Packages
Title: Designing and Managing Indian Housing Rehab Programs: Trainer's Manual
Origin: Great Lakes Intertribal Council
Publisher: Great Lakes Intertribal Council Inc
Year: 1984

396 Category: F6 Research Designs and Needs
Title: Building Rehabilitation Research and Technology for the 1980's
Origin: Americus, Cathy (ed.) National Bureau of Standards
Publisher: Kendall/Hunt Publishing Co., Dubuque, Iowa
Year: 1980

397 Category: F6 Research Designs and Needs
Title: Housing Rehabilitation Research Needs for the Eighties
Origin: Brenner, William National Institute of Building Sciences
Publisher: HUD, Washington D.C.
Year: 1981

398 Category: F6 Research Designs and Needs
Title: Research on Urban Renewal: A Consultancy Report to the ESRC, Environment and Planning Committee
Origin: Thomas, Andrew Karn, V. Gibson, N.
Publisher: Economic and Social Research Council (ESRC)
Year: 1984

399 Category: F6 Research Designs and Needs
Title: Housing Renovation Research from CMHC - Recherche sur la remise en etat des logements presentes par la SCHL
Origin: CMHC
Publisher: CMHC
Year: 1986

400 Category: F6 Research Designs and Needs
Title: Notes on Research of Interest to Builders and Renovators (Prepared for 43rd National Conference/Exposition, CHBA Feb. 1986 Edmonton)
Origin: CMHC-Research Division
Publisher: CMHC
Year: 1986

401 Category: F7 Catalogues, Inventories, Terminology
Title: Recycling Neighbourhoods: A Catalog of Housing Rehabilitation Programs and Neighbourhood Preservation Activities in Texas
Origin: Texas Department of Community Affairs
Publisher: HUD
Year: 1980

402 Category: F7 Catalogues, Inventories, Terminology
Title: Rehabilitation and Related Programs Inventory
Origin: CMHC-Program Evaluation Division
Publisher: CMHC
Year: 1984

403 Category: F7 Catalogues, Inventories, Terminology
Title: Housing: A Multidisciplinary Dictionary
Origin: Sayegh, Kamal S.
Publisher: Academy Book, Ottawa
Year: 1987

APPENDIX F

DETAILED TABULATION OF TITLES

TABLE F.1: FREQUENCY DISTRIBUTION OF TITLES BY CATEGORY AND COUNTRY

CATEGORY[1]			Canada[2]	Other[3]	USA	Total
ROLE OF GOVERNMENT	A1	Count	20	7	3	30
		Col %	10.6	10.8	2.0	
	A2		8	8	8	24
			4.3	12.3	5.3	
	A3		1	3	5	9
			.5	4.6	3.3	
	A4		6		9	15
			3.2		6.0	
	A5		2	1		3
			1.1	1.5		
	A6		14	1	16	31
			7.4	1.5	10.7	
	A7		6	2	11	19
			3.2	3.1	7.3	
INDUSTRY AND MARKET STUDIES	B1		13	3	5	21
			6.9	4.6	3.3	
	B2		1		5	6
			.5		3.3	
	B3		4	2	1	7
			2.1	3.1	.7	
	B4		14	1	6	21
			7.4	1.5	4.0	
	B5		1	3	1	5
			.5	4.6	.7	
IMPACTS AND EFFECTS	C1		6		5	11
			3.2		3.3	
	C2		10	1	6	17
			5.3	1.5	4.0	
	C3		15	6	13	34
			8.0	9.2	8.7	
HOUSING CONDITIONS AND NEEDS	D1		3	1	2	6
			1.6	1.5	1.3	
	D2		13	1	8	22
			6.9	1.5	5.3	
	D3		8	5	6	19
			4.3	7.7	4.0	
	D4		4	1	1	6
			2.1	1.5	.7	
TECHNOLOGY	E1		7	1	2	10
			3.7	1.5	1.3	
	E2		18	3	10	31
			9.6	4.6	6.7	
	E3		1	1	1	3
			.5	1.5	.7	
OTHER TITLES	F1		4	1	5	10
			2.1	1.5	3.3	
	F2		3	3	15	21
			1.6	4.6	10.0	
	F3		1	4		5
			.5	6.2		
	F4			5		5
				7.7		
	F5		2		2	4
			1.1		1.3	
	F6		2		3	5
			1.1		2.0	
	F7		1	1	1	3
			.5	1.5	.7	
		Column Total	188	65	150	403
			46.7	16.1	37.2	100.0

NOTES:

[1] See Appendix E for index to categories.

[2] "Canada" includes seven studies designated as "North America".

[3] "Other" includes 45 studies designated as United Kingdom and 20 as International.

TABLE F.2: FREQUENCY DISTRIBUTION OF TITLES BY CATEGORY AND YEAR

CATEGORY			1978-83	1984-88	Total
ROLE OF GOVERNMENT	A1	Count	11	19	30
		Col %	5.5	9.4	
	A2		10	14	24
			5.0	6.9	
	A3		5	4	9
			2.5	2.0	
	A4		7	8	15
			3.5	3.9	
	A5			3	3
				1.5	
	A6		22	9	31
			11.0	4.4	
	A7		9	10	19
			4.5	4.9	
INDUSTRY AND MARKET STUDIES	B1		8	13	21
			4.0	6.4	
	B2		4	2	6
			2.0	1.0	
	B3		3	4	7
			1.5	2.0	
	B4		10	11	21
			5.0	5.4	
	B5		5		5
			2.5		
IMPACTS AND EFFECTS	C1		5	6	11
			2.5	3.0	
	C2		7	10	17
			3.5	4.9	
	C3		18	16	34
			9.0	7.9	
HOUSING CONDITIONS AND NEED	D1		4	2	6
			2.0	1.0	
	D2		16	6	22
			8.0	3.0	
	D3		9	10	19
			4.5	4.9	
	D4		2	4	6
			1.0	2.0	
TECHNOLOGY	E1		2	8	10
			1.0	3.9	
	E2		13	18	31
			6.5	8.9	
	E3		1	2	3
			.5	1.0	
OTHER TITLES	F1		6	4	10
			3.0	2.0	
	F2		15	6	21
			7.5	3.0	
	F3		3	2	5
			1.5	1.0	
	F4			5	5
				2.5	
	F5		2	2	4
			1.0	1.0	
	F6		2	3	5
			1.0	1.5	
	F7		1	2	3
			.5	1.0	
		Column Total	200	203	403
			49.6	50.4	100.0